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GLOBAL DATA MONITORING REPORT

April, 1996

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area
10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 has been replaced by statistics for GOES-8 and GOES-9.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures			
Period		:One calendar month.	
Data monitored		:Reports from each unique identifier for ships, fixed buoys and platforms.	
Standard of comparison		:Background field from Bracknell global model.	
Observation times		:00, 06, 12, 18 UTC	
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (Degrees).	
Parameters monitored			
	:NOBS	:Number of observations received excluding duplicates.	
	:NGE	:Number of observations with gross errors.	
	:PGE	:Percentage of observations with gross errors.	
	:SD	:SD of difference of observations from background values excluding those with gross errors.	
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**	
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.	
GROSS ERROR LIMIT	:15 hPa (pressure) :25 m s^{-1} (vector wind)		
SELECTION CRITERIA	:NOBS	≥ 20 , and one or more of the following:	
	1.¦bias¦	≥ 4 hPa ≥ 5 m s^{-1} ≥ 30 degrees	(pressure), (wind speed), (direction).
	2.SD	≥ 6 hPa ≥ 80 degrees	(pressure), (direction).
	3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
BOAB	ALL	MSLP	SUR	53	2	4	1.8	-4.5	4.8
CYGR	ALL	MSLP	SUR	27	20	74	4.9	-7.5	9.0
C6FA6	ALL	MSLP	SUR	22	1	5	0.9	-5.8	5.9
C6IL3	ALL	MSLP	SUR	25	0	0	2.0	9.0	9.2
C6LU3	ALL	MSLP	SUR	29	2	7	1.1	12.5	12.5
DGLU	ALL	MSLP	SUR	77	0	0	1.9	-4.4	4.8
ELIG5	ALL	MSLP	SUR	41	0	0	1.2	4.1	4.2
ELNG6	ALL	MSLP	SUR	29	12	41	4.6	-12.6	13.4
ELRE5	ALL	MSLP	SUR	51	0	0	1.1	5.1	5.2
EUJV	ALL	MSLP	SUR	21	0	0	1.1	7.5	7.6
OUKV	ALL	MSLP	SUR	42	0	0	1.5	-4.1	4.4
OXWJ2	ALL	MSLP	SUR	63	2	3	4.2	8.8	9.7
OZ2003	ALL	MSLP	SUR	21	0	0	1.3	-6.4	6.5
PFXL	ALL	MSLP	SUR	23	0	0	1.3	4.1	4.3
P3XM4	ALL	MSLP	SUR	65	0	0	1.7	-4.6	4.9
SSHX	ALL	MSLP	SUR	23	3	13	2.7	-5.5	6.1
S6CL	ALL	MSLP	SUR	33	0	0	4.1	4.8	6.3
VCGJ	ALL	MSLP	SUR	20	20	100	0.0	0.0	0.0
VCRQ	ALL	MSLP	SUR	33	26	79	8.1	-1.9	8.3
VDRV	ALL	MSLP	SUR	24	11	46	2.1	-8.3	8.6
VJBQ	ALL	MSLP	SUR	27	16	59	5.1	-1.5	5.3
VOXZ	ALL	MSLP	SUR	23	23	100	0.0	0.0	0.0
VRUH6	ALL	MSLP	SUR	29	0	0	1.0	4.0	4.1
V2JN	ALL	MSLP	SUR	55	3	5	7.1	-4.6	8.4
V2QU	ALL	MSLP	SUR	24	0	0	1.7	-6.0	6.2
WEABKAC	ALL	MSLP	SUR	25	0	0	1.0	5.8	5.9
WQZ9670	ALL	MSLP	SUR	25	0	0	2.0	-4.8	5.2
YLAQ	ALL	MSLP	SUR	27	0	0	2.2	4.1	4.7
3ESE9	ALL	MSLP	SUR	31	0	0	1.3	7.3	7.4
3FTJ4	ALL	MSLP	SUR	24	0	0	1.2	7.3	7.4
WIND SPEED									
A8RO	ALL	SPEED	SUR	75	0	0	2.5	5.4	5.9
C6LC4	ALL	SPEED	SUR	23	2	9	2.4	5.0	5.6
DIDW	ALL	SPEED	SUR	26	0	0	4.0	5.1	6.5
DLAQX4	ALL	SPEED	SUR	46	0	0	5.5	8.8	10.4
DQQC	ALL	SPEED	SUR	21	0	0	5.6	6.9	8.9
FNNK	ALL	SPEED	SUR	72	2	3	5.0	9.5	10.8
FNVA	ALL	SPEED	SUR	59	0	0	3.6	5.0	6.1
FNZQ	ALL	SPEED	SUR	50	0	0	6.7	8.6	10.9
SQBG	ALL	SPEED	SUR	34	0	0	5.9	6.3	8.7
VJDP	ALL	SPEED	SUR	23	1	4	5.5	5.8	8.0
3EZZ9	ALL	SPEED	SUR	27	0	0	4.6	8.1	9.3
3FHT4	ALL	SPEED	SUR	20	0	0	4.9	5.7	7.6
3FNV5	ALL	SPEED	SUR	39	0	0	3.0	-6.7	7.3
4PKM	ALL	SPEED	SUR	86	0	0	5.7	6.1	8.4
9KKP	ALL	SPEED	SUR	23	0	0	2.2	5.0	5.4
9MTZ	ALL	SPEED	SUR	36	0	0	3.7	7.3	8.2
WIND DIRECTION									
C6LF8	ALL	DIRN.	SUR	20	0	0	46.5	37.8	59.9
ELDL5	ALL	DIRN.	SUR	48	0	0	85.0	9.5	85.6
VOLG	ALL	DIRN.	SUR	63	0	0	92.3	-11.3	92.9
Y3CH	ALL	DIRN.	SUR	84	0	0	24.4	-32.5	40.6
3ESQ5	ALL	DIRN.	SUR	20	0	0	54.3	-48.7	73.0
32305	ALL	DIRN.	SUR	69	0	0	31.6	32.1	45.1
32319	ALL	DIRN.	SUR	85	0	0	53.0	33.8	62.8
43001	ALL	DIRN.	SUR	41	0	0	84.6	-42.7	94.8
46002	ALL	DIRN.	SUR	99	0	0	29.6	-38.1	48.3

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
46027	ALL	DIRN.	SUR	58	0	0	36.0	-31.2	47.6
46053	ALL	DIRN.	SUR	70	0	0	42.3	-62.7	75.6
51008	ALL	DIRN.	SUR	37	0	0	30.4	-32.3	44.4
51018	ALL	DIRN.	SUR	94	0	0	85.2	25.2	88.9
52011	ALL	DIRN.	SUR	32	0	0	97.1	33.8	102.8
62165	ALL	DIRN.	SUR	24	1	4	106.9	4.9	107.0

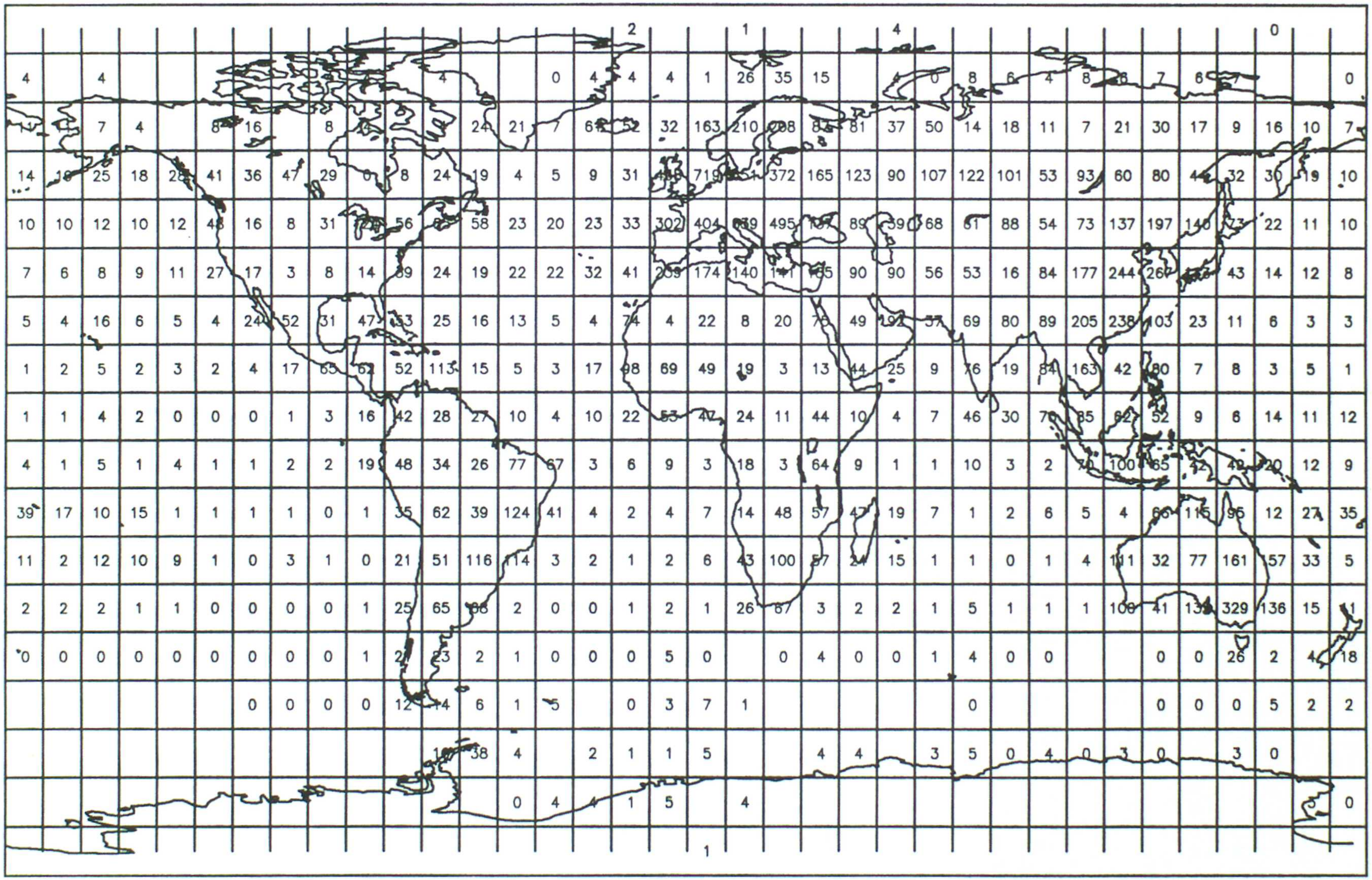
AVAILABILITY – SHIP/SYNOP – APRIL 1996

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18971

FIGURE 1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10 10 12 10 12 48 16 8 31 124 56 62 58 23 20 23 33 302 404 639 495 107 89 39 68 61 88 54 73 137 197 140 73 22 11 10
7 6 8 9 11 27 17 3 8 14 39 24 19 22 22 32 41 209 174 140 141 165 90 90 56 53 16 84 177 244 267 43 14 12 8
5 4 16 6 5 4 24 52 31 47 33 25 16 13 5 4 74 4 22 8 20 73 49 192 37 69 80 89 205 238 103 23 11 6 3 3
1 2 5 2 3 2 4 17 65 62 52 113 15 5 3 17 98 69 49 19 3 13 44 25 9 76 19 84 163 42 80 7 8 3 5 1
1 1 4 2 0 0 0 1 3 16 42 28 27 10 4 10 22 53 47 24 11 44 10 4 7 46 30 70 85 62 52 9 6 14 11 12
4 1 5 1 4 1 1 2 2 19 48 34 26 77 67 3 6 9 3 18 3 64 9 1 1 10 3 2 70 100 65 42 42 20 12 9
39 17 10 15 1 1 1 1 0 1 35 62 39 124 41 4 2 4 7 14 48 57 47 19 7 1 2 6 5 4 66 115 96 12 27 35
11 2 12 10 9 1 0 3 1 0 21 51 116 114 3 2 1 2 6 43 100 57 24 15 1 1 0 1 4 111 32 77 161 157 33 5
2 2 2 1 1 0 0 0 0 1 25 65 88 2 0 0 1 2 1 26 67 3 2 2 1 5 1 1 1 100 41 138 329 136 15 11
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0 0 0 0 12 14 6 1 5 0 3 7 1 0 0 0 0 5 2 2
16 38 4 2 1 1 5 4 4 3 5 0 4 0 3 0 3 0
0 4 4 1 5 4 3 0
1

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)	
	:25 $m\ s^{-1}$	(vector wind)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.¦bias¦	≥ 4 hPa	(pressure),
		≥ 5 $m\ s^{-1}$	(wind speed),
		≥ 30 degrees	(direction).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
17604	-28.9	13.7	ALL	MSLP	SUR	173	173	100	0.0	0.0	0.0
33535	-38.3	55.2	ALL	MSLP	SUR	488	84	17	6.8	-3.4	7.6
33537	-45.5	83.2	ALL	MSLP	SUR	301	38	13	7.7	0.2	7.7
34909	-41.3	-79.4	ALL	MSLP	SUR	150	1	1	5.0	4.2	6.5
54925	-50.0	-160.4	ALL	MSLP	SUR	235	65	28	4.3	-0.6	4.3
56601	-40.0	84.7	ALL	MSLP	SUR	94	7	7	4.2	5.0	6.5
56602	-25.8	89.1	ALL	MSLP	SUR	95	3	3	2.2	-10.4	10.6
71542	44.7	-63.6	ALL	MSLP	SUR	54	51	94	3.8	-6.9	7.9
74537	-62.1	81.3	ALL	MSLP	SUR	532	124	23	6.4	-3.1	7.1
WIND SPEED											
31521	-14.1	-26.4	ALL	SPEED	SUR	111	0	0	0.5	-6.5	6.6
46558	41.7	-136.8	ALL	SPEED	SUR	29	0	0	2.2	-10.0	10.3
WIND DIRECTION											
31521	-14.1	-26.4	ALL	DIRN.	SUR	111	0	0	10.0	-104.6	105.1
46557	37.1	-143.2	ALL	DIRN.	SUR	146	0	0	32.8	-44.6	55.3
46558	41.7	-136.8	ALL	DIRN.	SUR	29	0	0	12.9	-40.4	42.4
55588	-44.3	154.4	ALL	DIRN.	SUR	909	7	1	45.4	-103.4	112.9

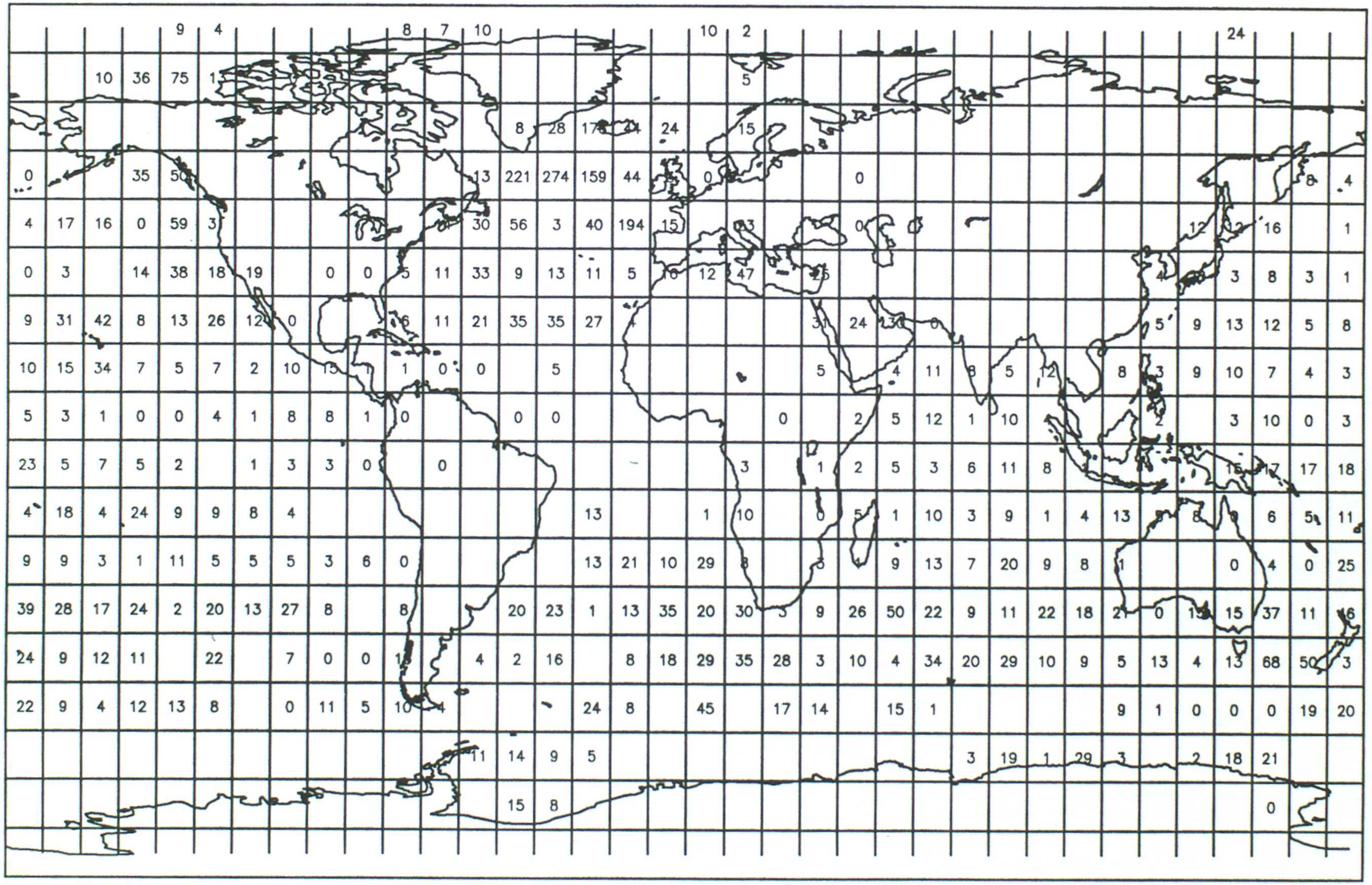
AVAILABILITY – DRIBU – APRIL 1996

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 5057

FIGURE 2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10 15 34 7 5 7 2 10 15 1 1 0 0 5 5 4 11 8 5 12 8 3 9 10 7 4 3
5 3 1 0 0 4 1 8 8 1 0 0 0 0 2 5 12 1 10 2 3 10 0 3
23 5 7 5 2 1 3 3 0 0 3 1 2 5 3 6 11 8 15 17 17 18
4 18 4 24 9 9 8 4 13 1 10 0 5 1 10 3 9 1 4 13 8 9 6 5 11
9 9 3 1 11 5 5 5 3 6 0 13 21 10 29 8 3 4 9 13 7 20 9 8 1 0 4 0 25
39 28 17 24 2 20 13 27 8 8 20 23 1 13 35 20 30 3 9 26 50 22 9 11 22 18 21 0 13 15 37 11 16
24 9 12 11 22 7 0 0 1 4 2 16 8 18 29 35 28 3 10 4 34 20 29 10 9 5 13 4 13 68 50 3
22 9 4 12 13 8 0 11 5 10 4 24 8 45 17 14 15 1 9 1 0 0 0 19 20
11 14 9 5 3 19 1 29 3 2 18 21
15 8 0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.¦bias¦	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	110	1	1	88	1.1	4.7	4.8
60468	35.6N	6.2E	1052	S8	105	105	100	0	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	108	108	100	0	0.0	0.0	0.0
60535	34.7N	3.3E	1144	S8	79	0	0	94	1.3	-6.1	6.2
60571	31.6N	2.2W	773	S8	110	1	1	18	1.3	-4.0	4.2
60670	24.6N	9.5E	1054	S8	106	8	8	91	1.9	8.4	8.6
61731	13.3N	14.2W	4	M	24	1	4	88	2.1	-4.1	4.6
63333	11.1N	39.7E	1916	MS	63	1	2	86	0.9	7.2	7.3
63453	8.8N	39.8E	1062	S	45	2	4	100	1.3	12.2	12.3
67877	18.2S	31.5E	1632	S8	74	0	0	74	2.3	8.7	9.0
68014	19.6S	18.1E	1411	S8	81	0	0	95	1.4	-6.6	6.7
68018	17.9S	19.8E	1083	S8	85	0	0	0	1.2	-4.3	4.5
68396	26.5S	31.3E	641	8	43	0	0	79	1.1	4.1	4.2
68442	29.1S	26.3E	1354	S8	118	0	0	97	0.9	-5.6	5.7
68752	32.8S	27.4E	524	S8	71	0	0	97	1.1	-7.2	7.3

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	MS	58	2	3	97	2.6	11.1	11.4
40701	39.3N	44.4E	1470	MS	99	0	0	100	1.2	7.3	7.4
40743	36.2N	57.7E	941	MS	118	0	0	25	1.4	-5.3	5.5
40762	35.3N	59.2E	1333	MS	118	39	33	0	1.0	-13.5	13.5
40763	35.2N	58.5E	1060	MS	49	0	0	27	1.9	-6.3	6.6
40783	32.4N	49.7E	1972	MS	95	0	0	77	1.7	-6.1	6.3
40789	33.8N	55.1E	921	MS	73	0	0	97	1.7	8.4	8.6
40836	30.8N	51.7E	1880	MS	85	3	4	93	1.5	8.8	8.9
40859	29.0N	53.7E	1383	MS	92	2	2	98	1.5	9.0	9.1
41254	23.1N	57.7E	1755	S8	23	23	100	0	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	28	0	0	57	1.7	6.4	6.6
44232	49.4N	102.7E	933	MS	69	2	3	57	1.8	-4.9	5.2
44277	46.4N	96.3E	2147	MS	87	1	1	33	1.6	-5.3	5.5
44292	47.9N	107.0E	1338	MS	88	0	0	47	1.3	4.5	4.7
44477	27.0N	87.4E	1445	S8	53	53	100	0	0.0	0.0	0.0
47022	40.8N	128.2E	1206	S	107	2	2	64	2.1	4.6	5.1
52602	38.8N	93.4E	2734	S	117	1	1	8	2.1	-5.2	5.6
56144	31.7N	98.6E	3204	S	107	1	1	24	2.1	-4.0	4.5
56287	30.0N	103.0E	629	M	118	0	0	1	2.4	5.4	5.9
56444	28.5N	98.9E	3488	S	118	118	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	101	0	0	95	3.2	7.2	7.9

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	41	1	2	2	1.4	-6.6	6.7
82704	7.6S	72.7W	170	MS	58	0	0	2	2.2	-4.8	5.3
83214	10.3S	54.9W	285	MS	41	0	0	0	1.3	-5.6	5.7
83235	12.4S	46.4W	660	MS	71	0	0	100	0.9	7.0	7.1
83295	13.4S	39.9W	755	MS	47	0	0	87	0.7	-4.0	4.1
83319	14.7S	52.4W	315	MS	61	0	0	0	1.2	-4.4	4.6
83332	14.1S	46.4W	950	MS	68	16	24	0	0.8	13.8	13.8
83408	14.3S	43.8W	556	MS	74	0	0	99	1.6	11.0	11.1
83423	16.7S	49.3W	729	MS	75	2	3	71	0.9	-5.3	5.4
83488	17.8S	42.9W	1097	MS	78	78	100	0	0.0	0.0	0.0
83531	18.6S	46.5W	896	MS	64	0	0	69	1.0	-6.8	6.9
83587	19.9S	43.9W	850	MS	83	0	0	95	1.0	-7.8	7.9
83689	21.3S	43.8W	1171	MS	68	0	0	82	0.9	4.9	5.0
83704	22.3S	53.9W	369	MS	67	1	1	88	3.5	-7.9	8.6
83836	25.5S	50.6W	837	MS	72	1	1	53	0.8	-4.0	4.1

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83916	28.2S	51.5W	806	MS	69	0	0	71	1.2	-4.2	4.4
84455	6.5S	76.4W	282	MS	116	0	0	2	2.3	7.2	7.6
84472	7.1S	78.5W	2622	S	37	1	3	92	1.1	-5.6	5.7
84542	9.4S	77.6W	2760	S	43	0	0	9	1.9	5.4	5.7
84686	13.6S	72.0W	3249	S	119	1	1	1	1.7	-4.9	5.2
84782	18.1S	70.3W	469	MS	119	0	0	29	1.7	8.6	8.8
85312	19.8S	63.9W	992	M	40	0	0	100	1.1	-6.2	6.3
85406	18.3S	70.3W	58	M	120	0	0	8	1.7	5.9	6.1
88883	51.9S	60.9W	17	M	78	0	0	73	3.3	-8.1	8.7

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
76118	30.4N	109.7W	1040	MS	35	0	0	100	1.4	-9.3	9.4
76539	22.1N	101.0W	1871	MS	77	0	0	56	1.1	-4.4	4.5
76632	20.1N	98.7W	2417	MS	55	0	0	51	2.3	-5.5	6.0
76634	20.1N	98.4W	2135	MS	85	2	2	54	1.5	-5.2	5.4
76658	19.2N	103.7W	494	MS	26	0	0	0	0.9	6.4	6.5
76726	18.9N	99.3W	1560	MS	58	1	2	98	1.6	-7.4	7.6
76762	17.5N	99.5W	1360	MS	82	0	0	100	1.3	12.4	12.5
76848	16.3N	92.1W	1530	MS	95	13	14	99	1.1	-12.9	12.9

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
91339	5.5N	153.8E	3	MS	57	1	2	39	1.4	-4.3	4.5

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	85	0	0	100	1.5	-5.8	6.0
08221	40.5N	3.6W	633	MS	116	1	1	100	1.0	6.0	6.1
11024	48.4N	15.4E	860	S8	109	17	16	0	0.8	-13.3	13.3
11346	47.3N	12.8E	917	S8	89	0	0	33	1.5	-4.2	4.5
16020	46.5N	11.3E	1461	MS	87	87	100	0	0.0	0.0	0.0
16227	41.9N	13.6E	655	MS	119	111	93	0	0.7	-14.1	14.1
16614	40.4N	21.3E	604	MS	109	0	0	100	1.2	-7.3	7.4

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89208	90.0S	0.0W	2835	S7	80	80	100	0	0.0	0.0	0.0
89266	72.2S	60.3W	91	MS	82	64	78	0	3.7	-11.2	11.8
89324	80.0S	120.0W	1530	S8	32	0	0	0	2.5	-4.6	5.2
89705	81.5S	3.7E	2410	S7	44	44	100	0	0.0	0.0	0.0
89757	73.8S	55.7E	2775	S8	98	98	100	0	0.0	0.0	0.0
89803	68.5S	102.2E	2118	S7	85	11	13	80	2.1	-10.8	11.0
89811	66.7S	112.9E	1362	S8	20	19	95	15	0.0	10.6	10.6
89847	67.6S	146.0E	30	MS	83	3	4	2	2.1	-8.5	8.8
89863	74.9S	163.1E	30	MS	84	2	2	20	4.0	-6.9	8.0
89865	76.2S	168.7E	275	MS	81	81	100	0	0.0	0.0	0.0
89868	79.9S	169.8E	60	MS	85	85	100	0	0.0	0.0	0.0

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	181	0	2	1.8	1.1	182	0	4	1	7.8	0.8
AAL	5231	0	1	1.7	0.1	5215	0	2	0	7.6	0.9
AAN	202	2	2	2.0	-0.5	201	0	5	0	10.2	1.0
AAR	1817	1	2	1.8	0.0	1840	0	3	0	9.2	0.6
ACA	1456	0	1	2.0	0.1	1487	0	1	0	6.8	0.5
ACI	24	4	8	2.4	1.2	23	0	0	0	7.6	3.0
AEA	540	2	100	3.3	0.9	520	0	4	0	10.1	1.0
AEL	690	0	2	2.0	-0.3	704	0	3	0	8.1	0.6
AFL	163	0	100	2.9	1.3	163	1	4	0	6.6	0.7
AFR	1559	0	4	1.8	-0.2	1591	0	4	0	8.1	1.2
AIC	22	0	9	3.0	1.5	22	0	18	0	14.0	0.9
AIH	98	0	1	2.0	0.0	102	0	0	0	7.1	0.6
AMT	403	1	1	1.8	0.4	407	0	2	0	7.2	-0.1
AMX	174	1	2	2.0	-0.3	173	0	2	0	8.8	0.5
AMY	145	1	3	1.9	-0.5	144	0	4	0	9.8	1.1
ANA	933	0	1	1.9	-0.4	933	0	2	0	8.7	0.9
ANZ	2538	1	4	2.0	-0.2	2533	0	3	1	8.2	1.7
AOM	560	1	3	1.8	0.8	576	0	3	0	8.0	0.9
ATN	44	2	14	2.6	-1.1	44	0	100	0	17.1	-1.3
AUA	72	0	0	2.0	-0.9	73	0	0	0	6.7	1.5
AVA	377	0	3	1.9	0.1	384	0	3	0	9.4	1.4
AVN	44	0	0	1.4	0.6	44	0	5	2	9.3	2.0
AZA	503	1	5	2.0	0.0	509	0	5	0	7.1	1.2
BAL	377	0	13	1.9	0.2	387	0	13	0	8.8	0.8
BAW	1782	0	2	2.0	0.0	1798	0	3	1	7.2	0.9
BBB	68	6	6	1.4	-0.2	68	0	6	0	10.1	0.4
BWA	399	2	3	2.0	0.8	405	0	3	0	8.3	1.2
CAL	1580	0	1	2.0	0.0	1597	0	2	0	9.0	0.8
CCA	179	0	93	2.7	0.8	197	1	93	0	11.8	0.1
CDN	2474	0	1	1.9	0.4	2486	0	2	1	8.3	0.9
CES	142	0	1	1.9	0.2	153	1	91	0	11.0	0.2
CFC	21	5	14	2.3	0.1	21	0	19	0	7.4	1.3
CFG	1122	0	3	2.0	-0.9	1131	0	3	0	8.8	0.7
CKS	130	3	82	3.0	1.2	130	1	9	3	9.7	1.7
CKT	80	3	3	2.2	0.9	81	0	4	1	8.8	-0.6
CLI	66	2	3	1.9	-0.4	67	0	0	0	7.1	1.4
CLX	138	0	0	1.9	-0.4	141	0	1	0	7.2	1.2
CMI	899	1	2	2.0	0.0	909	0	2	0	8.6	0.7
CMM	278	1	2	1.7	-0.2	279	0	1	0	8.3	1.1
COA	866	1	3	2.0	0.4	867	0	2	0	7.1	0.6
CPA	65	2	3	2.5	-1.1	69	0	3	0	9.1	1.2
CRL	591	1	3	1.9	0.2	593	0	3	0	8.8	0.7
CSA	29	0	0	1.5	-0.5	30	0	3	0	7.4	2.2
CTM	55	0	9	1.5	-0.4	58	0	9	0	9.5	2.5
CUB	372	1	100	2.9	1.6	374	0	100	0	12.3	1.9
DAF	40	0	3	2.9	0.6	40	0	5	5	6.2	0.3
DAL	5409	0	2	2.0	0.7	5059	0	2	0	7.5	0.8
DHL	386	3	100	4.6	-2.5	385	0	4	1	9.1	1.2
DLH	2639	0	7	2.5	0.8	2649	0	10	3	7.2	0.7
DOA	225	0	15	1.9	0.2	217	0	17	0	9.4	0.4
EIA	63	2	10	2.0	-0.9	63	0	11	0	8.6	0.6
ELY	113	0	6	1.6	-0.3	119	1	14	2	9.3	2.1
EVA	1662	0	1	1.9	-0.5	1723	0	2	0	9.1	0.7
EWW	109	4	39	3.4	0.5	116	0	100	1	16.0	4.3
FDX	1406	1	2	1.9	0.7	1413	0	1	0	7.6	1.0
FIN	351	0	1	1.7	0.5	349	0	3	1	7.1	0.8
FJI	514	1	2	1.5	0.4	512	0	2	0	8.6	1.5
FNY	36	0	6	2.0	0.0	33	0	3	0	8.3	2.9
FOM	64	2	2	1.9	0.4	64	0	0	0	8.5	3.8

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GAF	98	0	7	2.2	0.7	99	0	6	1	6.2	1.0
GHA	27	0	0	1.5	-0.4	27	0	0	0	8.7	1.9
GIA	203	2	1	1.8	0.4	206	0	2	0	7.1	1.5
GTI	53	4	4	1.8	0.1	50	0	2	0	9.2	1.5
HAL	1546	0	1	1.6	0.6	1547	0	2	0	8.2	0.3
HLF	148	1	3	1.7	-0.9	146	0	5	0	8.7	0.9
HRH	37	11	14	1.1	0.3	33	0	6	0	7.2	1.0
IBE	1817	1	13	2.1	0.3	1814	0	14	0	8.7	0.8
ICE	636	0	1	1.7	-0.2	628	0	3	2	6.7	1.0
JAA	32	0	6	2.1	0.4	32	0	6	0	10.1	2.7
JAL	6263	0	1	2.1	0.3	6289	0	2	0	8.6	0.8
JAZ	62	0	0	1.9	1.3	62	0	2	0	7.8	0.9
KAL	3514	1	2	2.0	-0.1	3522	0	2	0	9.1	0.9
KIC	112	1	2	1.7	0.1	112	0	1	0	9.3	1.2
KLM	2434	0	2	1.9	0.4	2434	0	3	1	7.6	0.8
LDA	279	0	8	2.2	-1.2	283	0	8	0	7.4	0.2
LDI	284	0	2	2.2	-1.3	292	0	5	0	9.6	0.0
LIB	521	1	2	1.9	0.8	527	0	3	0	9.1	0.6
LOT	259	0	2	2.1	-0.9	256	0	2	0	7.5	0.2
LTU	868	0	1	1.7	0.4	846	0	3	0	8.4	0.9
MAS	305	1	2	2.0	-0.5	332	1	5	0	10.3	0.6
MDA	169	1	1	2.0	-0.6	173	0	3	1	9.3	0.2
MPH	770	0	2	2.0	-0.6	776	0	2	0	7.8	0.7
NCA	656	0	1	2.0	0.7	652	0	2	1	8.3	0.5
NWA	10106	0	2	2.2	0.7	10118	0	2	1	8.3	0.7
OAL	40	0	0	2.7	1.5	41	0	2	0	8.2	0.1
OOE	36	3	28	2.6	1.7	35	0	29	3	5.0	0.4
PAC	102	2	2	2.1	0.6	103	0	6	1	8.9	0.9
PAL	1007	0	1	1.8	-0.5	1011	0	3	0	9.9	0.7
PAO	180	1	2	1.5	0.0	180	0	2	0	9.1	1.1
PIA	37	0	5	2.9	-0.4	37	0	0	0	6.1	0.7
PNL	70	1	3	2.4	1.9	69	0	4	0	9.9	-1.3
QFA	1063	1	2	1.6	0.0	1058	0	2	1	8.2	1.5
RAF	124	0	0	1.8	0.8	124	0	4	2	9.4	1.5
RAM	22	0	0	2.3	-1.4	23	0	0	0	8.0	1.8
RIA	212	0	100	2.3	1.2	215	0	100	0	11.0	1.0
RJA	114	1	4	2.3	0.6	115	0	3	0	6.5	0.5
RKA	67	1	1	1.5	-0.6	67	0	3	0	9.9	0.3
RON	35	0	0	1.0	0.6	35	0	0	0	6.7	2.2
RRR	231	1	20	2.6	-0.5	229	0	20	1	9.0	1.0
SAA	193	2	2	1.8	-0.7	193	0	3	1	9.2	1.3
SAB	52	2	2	1.8	-0.4	53	0	2	0	6.8	1.2
SAS	1098	0	1	1.6	0.0	1093	0	3	1	6.8	0.6
SIA	1156	0	1	2.1	-0.5	1175	0	3	0	9.6	0.9
SLR	40	0	15	2.1	-1.2	40	0	15	0	7.2	2.1
SOL	52	4	4	1.8	0.7	49	0	2	2	6.6	0.2
SPP	157	0	10	1.9	-0.1	150	0	7	0	8.1	0.0
SVA	115	0	3	1.5	-0.1	124	0	9	0	10.3	1.9
SVV	28	0	7	3.3	2.3	28	0	21	0	17.2	0.7
SWR	155	0	2	2.0	0.8	154	0	3	0	9.4	1.5
TAP	705	1	6	2.0	-0.5	702	0	6	0	10.0	0.8
TEJ	90	1	20	1.6	-0.1	93	1	22	0	10.9	0.9
THA	199	0	1	2.0	-0.4	206	2	4	0	9.5	0.6
TOW	100	1	6	1.8	-0.1	105	1	4	0	8.8	1.3
TSC	28	0	7	2.4	1.3	29	0	3	0	7.6	-0.2
TWA	1534	0	2	2.0	0.1	1518	0	2	0	7.8	1.0
UAL	51611	1	3	1.6	0.2	51714	0	2	0	7.8	0.9
ULE	219	0	1	1.7	0.1	214	0	2	0	8.1	1.2
UPS	869	1	9	1.7	0.2	877	0	10	0	7.6	0.9

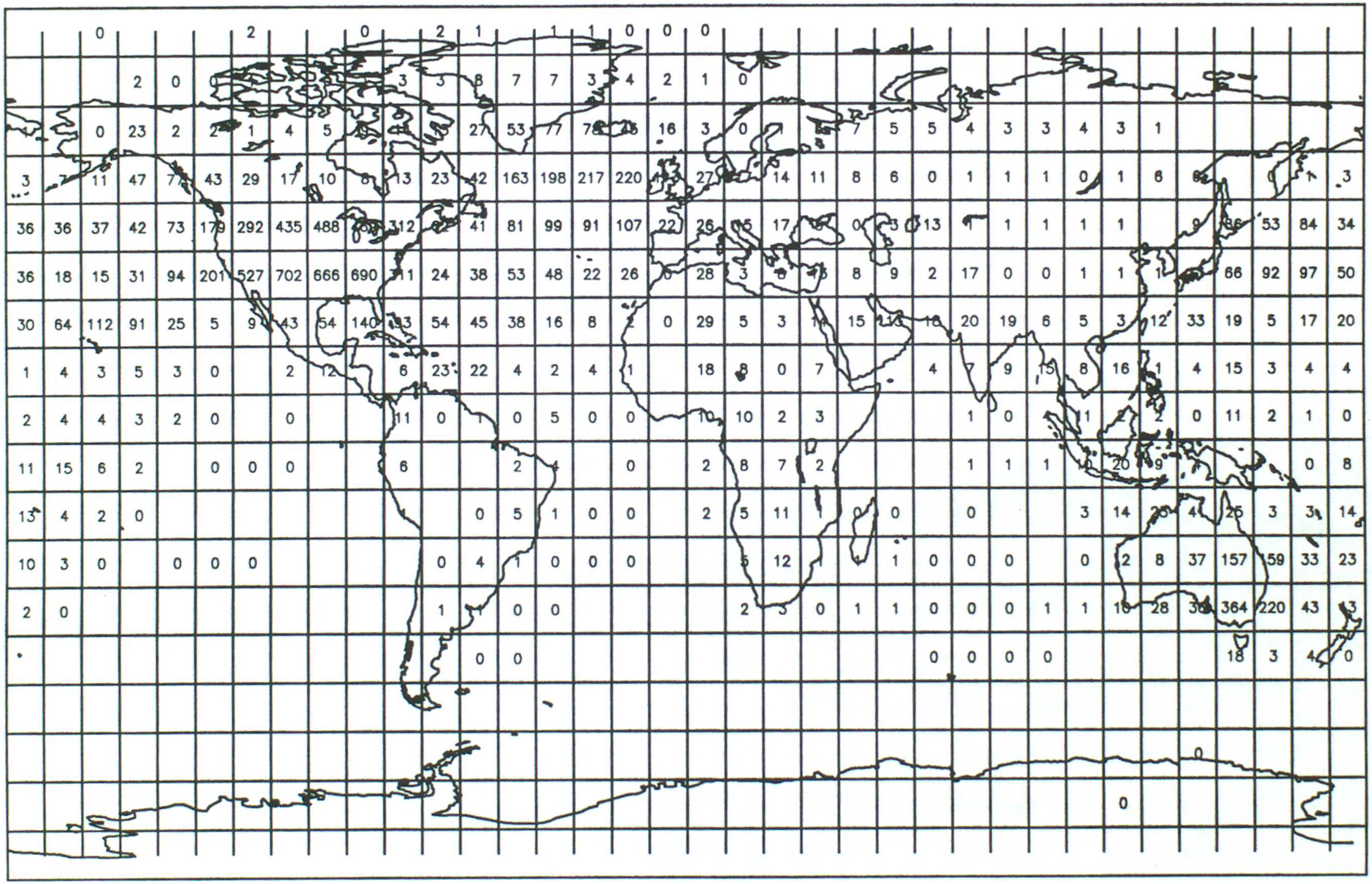
	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
USA	100	1	0	1.2	-0.5	99	0	0	0	6.4	0.7
VIA	523	2	4	2.1	0.9	524	0	3	0	8.9	0.6
VIR	182	1	3	1.7	-0.2	181	0	4	1	8.8	1.6
VRG	74	0	3	2.1	0.7	79	0	3	0	8.4	-0.1
VSP	139	1	4	1.9	0.5	147	1	3	0	8.8	1.1
WOA	51	0	14	1.5	0.6	52	0	15	0	8.8	0.6
AN	24989	0	1	1.1	0.1	24827	0	1	0	7.4	1.6
BA	26290	0	11	1.2	0.4	26220	0	11	0	7.1	1.1
DL	80542	0	3	1.5	0.1	80542	0	3	0	7.9	1.3
FJ	39	3	5	2.1	1.1	39	0	0	0	5.7	1.2
KL	11189	0	10	1.2	0.3	11185	0	10	0	7.2	1.3
LH	3019	0	3	1.1	0.3	3008	0	3	0	6.5	1.3
MF	34	0	0	1.9	-0.7	34	0	3	0	11.3	1.8
NW	22597	0	2	1.5	0.3	22598	0	2	0	7.4	1.0
QF	7129	0	1	1.0	0.2	7120	0	1	0	7.4	1.1
SA	1710	0	2	1.5	0.9	1710	0	100	0	8.8	2.4
SV	1541	3	7	1.6	0.5	1537	0	4	0	6.9	1.4
M	345	6	94	3.1	1.3	374	1	95	0	11.7	2.7
N	510	2	4	2.2	0.6	518	0	6	1	9.4	1.0

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

FIGURE 3

APRIL 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED


0 2 0 2 1 1 1 0 0 0
2 0 3 3 8 7 7 3 4 2 1 0
0 23 2 2 1 4 5 27 53 77 16 3 0 7 5 5 4 3 3 4 3 1
3 7 11 47 7 43 29 17 10 13 23 42 163 198 217 220 27 14 11 8 6 0 1 1 1 0 1 6 3
36 36 37 42 73 179 292 435 488 312 41 81 99 91 107 22 26 17 0 13 1 1 1 1 1 53 84 34
36 18 15 31 94 201 527 702 666 690 11 24 38 53 48 22 26 28 3 8 9 2 17 0 0 1 1 66 92 97 50
30 64 112 91 25 5 9 43 54 140 54 45 38 16 8 0 29 5 3 15 20 19 6 5 3 12 33 19 5 17 20
1 4 3 5 3 0 2 12 6 23 22 4 2 4 1 18 8 0 7 4 7 9 15 8 16 1 4 15 3 4 4
2 4 4 3 2 0 0 11 0 0 5 0 0 10 10 2 3 1 0 11 2 0 11 2 1 0
11 15 6 2 0 0 0 6 2 0 2 8 7 2 1 1 1 20 9 0 8
13 4 2 0 0 5 1 0 0 2 5 11 0 0 3 14 4 25 3 3 14
10 3 0 0 0 0 0 4 1 0 0 0 12 1 0 0 0 0 2 8 37 157 59 33 23
2 0 1 0 0 2 0 1 1 0 0 0 1 1 28 364 220 43 3
0 0 0 0 0 0 18 3 4 0
0
0

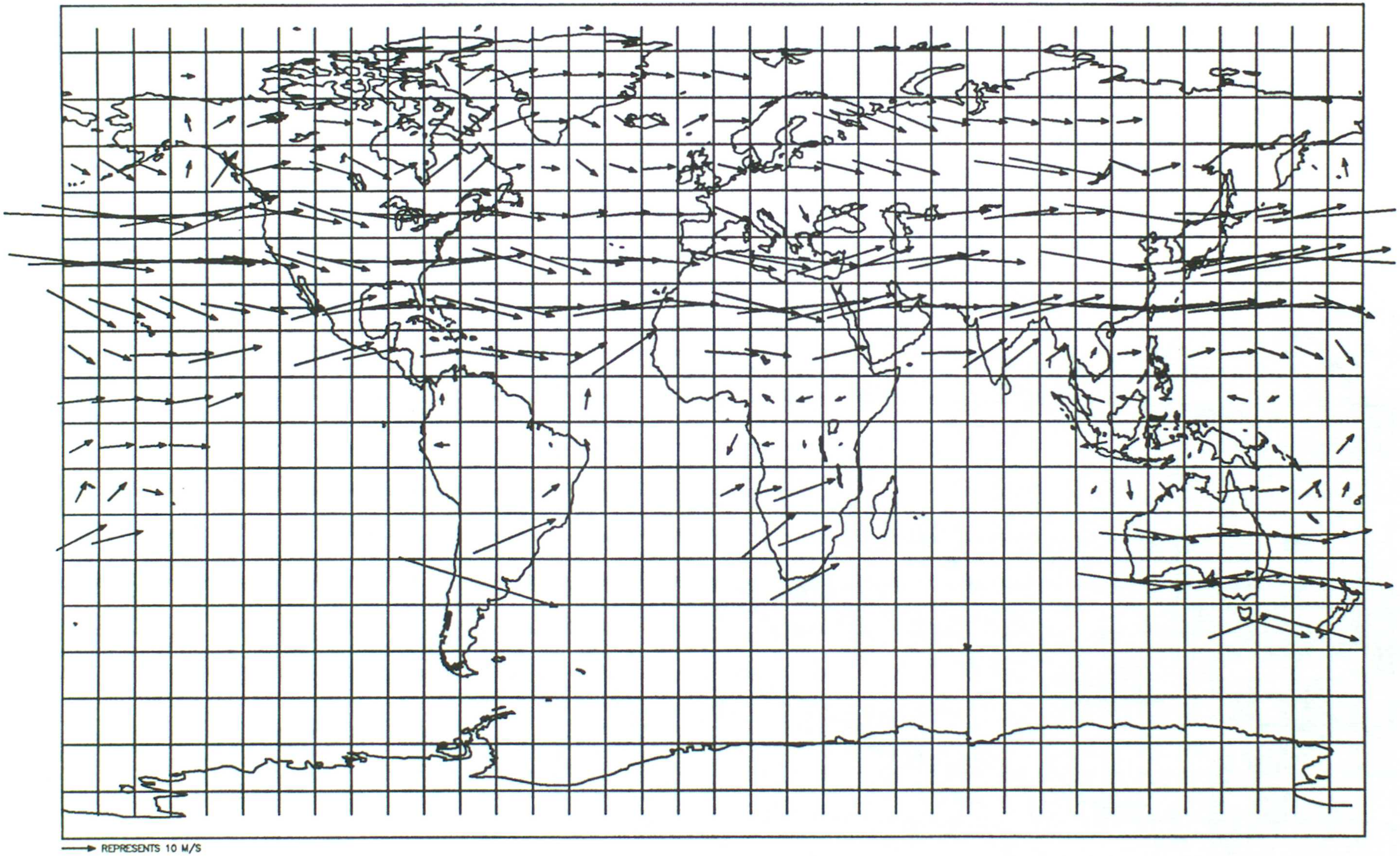
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

FIGURE 4

APRIL 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



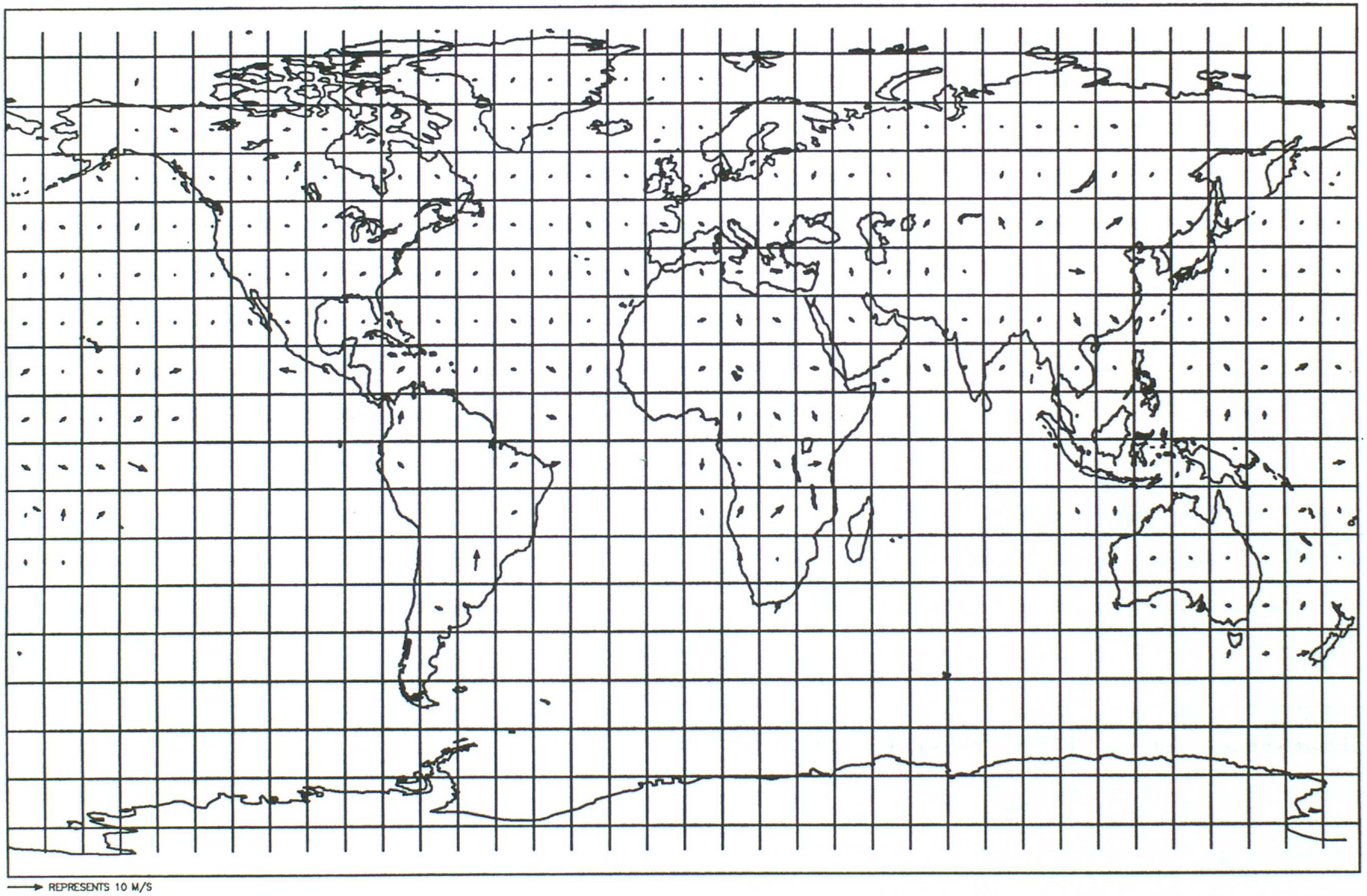
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

APRIL 1996

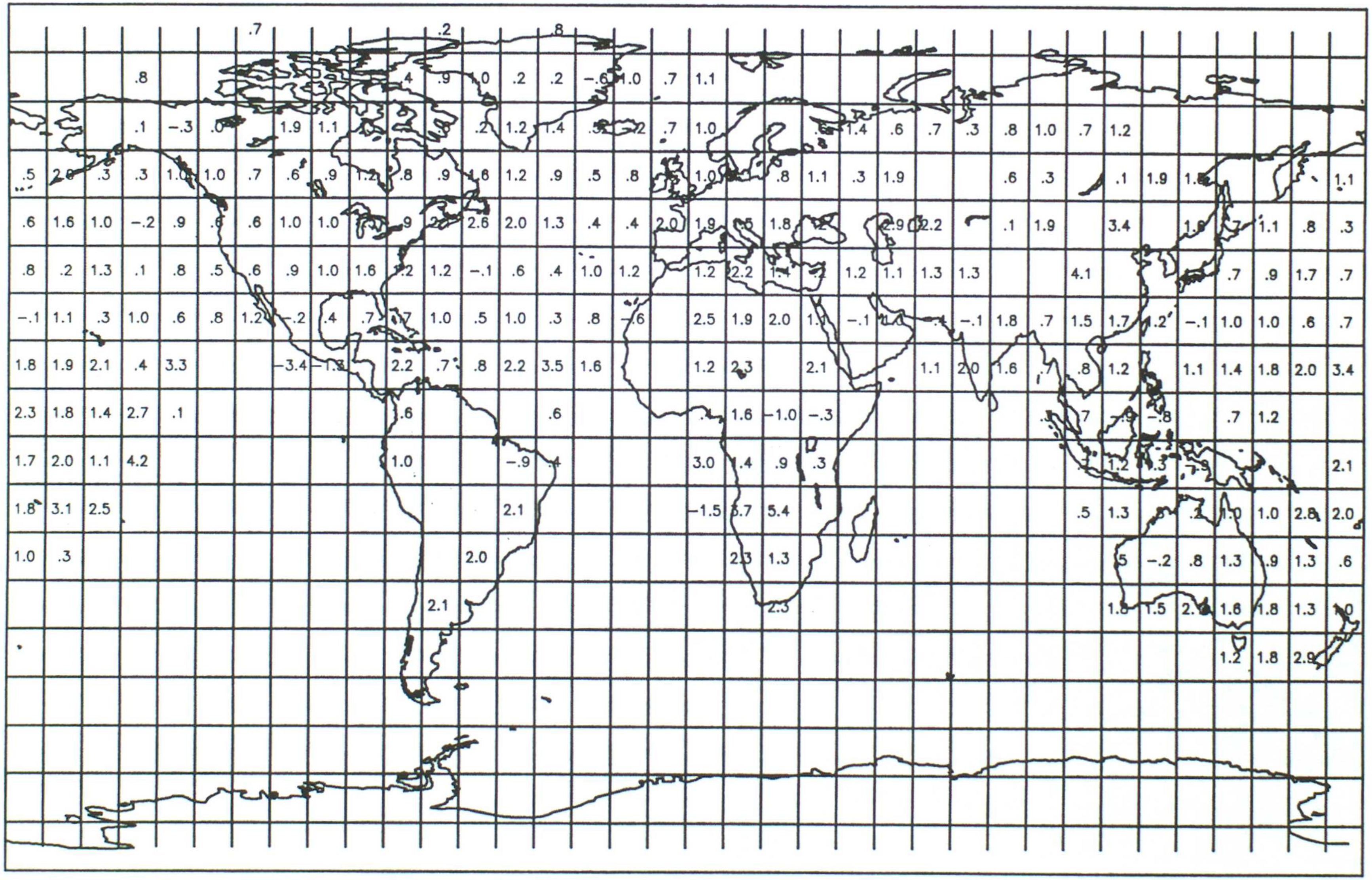
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 5



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
APRIL 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


.7 .2 .8
.8 .4 .9 1.0 .2 .2 –.6 1.0 .7 1.1
.1 –.3 .0 1.9 1.1 .3 .2 1.2 1.4 .3 .2 .7 1.0 .6 1.4 .6 .7 .3 .8 1.0 .7 1.2
.5 2.8 .3 .3 1.0 1.0 .7 .6 .9 1.2 .8 .9 1.8 1.2 .9 .5 .8 1.0 .8 1.1 .3 1.9 .6 .3 .1 1.9 1.8 1.1
.6 1.6 1.0 –.2 .9 .6 .6 1.0 1.0 .9 2.6 2.0 1.3 .4 .4 2.0 1.9 .5 1.8 2.9 2.2 .1 1.9 3.4 1.9 .7 1.1 .8 .3
.8 .2 1.3 .1 .8 .5 .6 .9 1.0 1.6 1.2 1.2 –.1 .6 .4 1.0 1.2 1.2 2.2 1.4 .2 1.2 1.1 1.3 1.3 4.1 .7 .9 1.7 .7
–.1 1.1 .3 1.0 .6 .8 1.2 –.2 .4 .7 .7 1.0 .5 1.0 .3 .8 .6 2.5 1.9 2.0 1.1 –.1 1.0 .1 –.1 1.8 .7 1.5 1.7 1.2 –.1 1.0 1.0 .6 .7
1.8 1.9 2.1 .4 3.3 –3.4 –1.3 2.2 .7 .8 2.2 3.5 1.6 1.2 2.3 2.1 1.1 2.0 1.6 .7 .8 1.2 1.1 1.4 1.8 2.0 3.4
2.3 1.8 1.4 2.7 .1 .6 .6 .1 1.6 –1.0 –.3 .3 .7 –.9 –.8 .7 1.2
1.7 2.0 1.1 4.2 1.0 –.9 .4 3.0 1.4 .9 .3 1.2 1.3 –.9 2.1
1.8 3.1 2.5 2.1 –1.5 3.7 5.4 .5 1.3 .2 1.0 1.0 2.8 2.0
1.0 .3 2.0 2.3 1.3 .5 –.2 .8 1.3 .9 1.3 .6
2.1 2.3 1.8 1.5 2.1 1.6 1.8 1.3 1.0
1.2 1.8 2.9

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
APRIL 1996
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

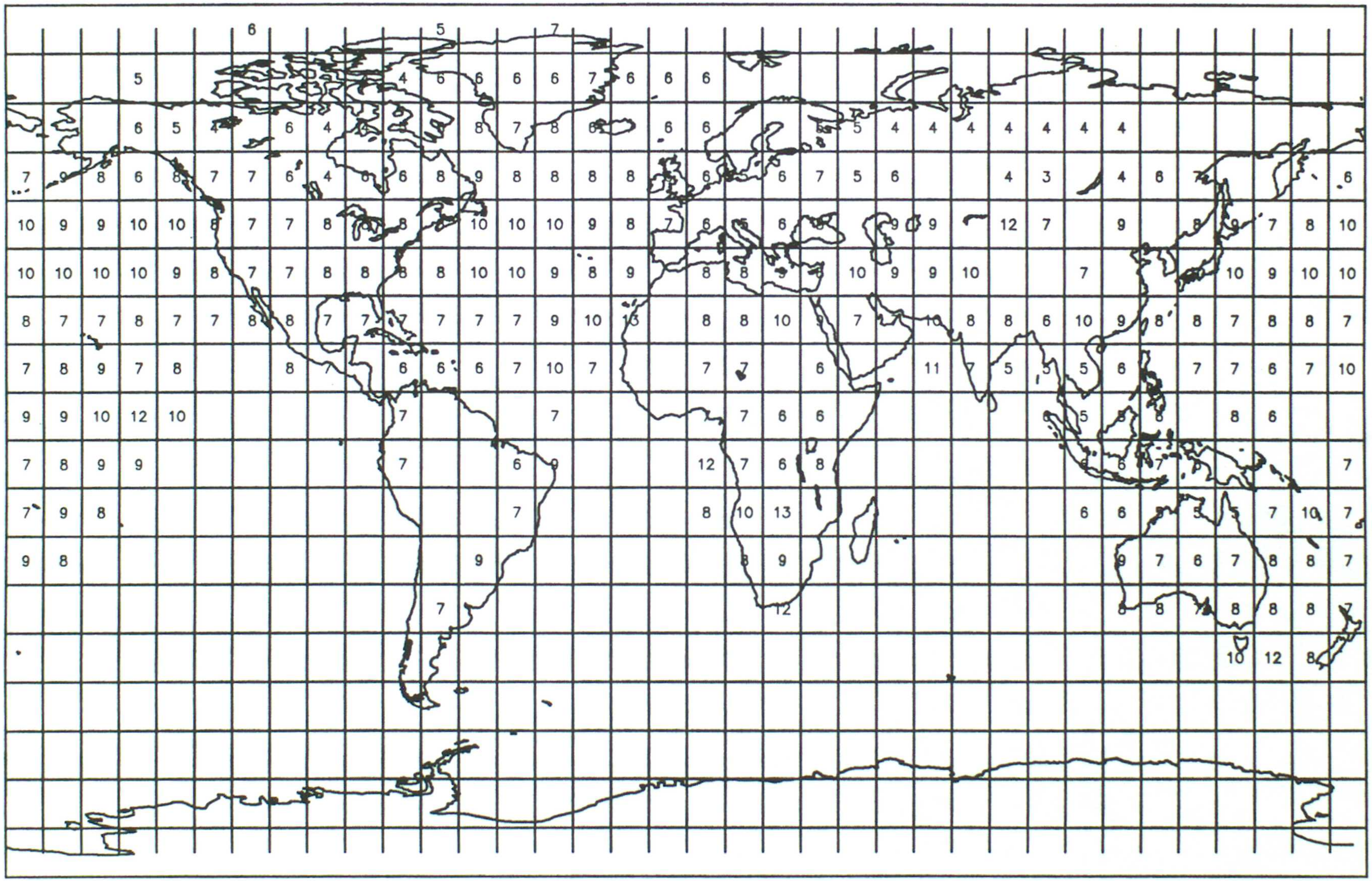

6 5 7
5 4 6 6 6 6 7 6 6 6
6 5 4 6 4 8 7 8 6 6 6 5 4 4 4 4 4 4 4
7 9 8 6 8 7 7 6 4 6 6 8 9 8 8 8 8 6 6 7 5 6 4 3 4 6 7 6
10 9 9 10 10 8 7 7 8 8 10 10 10 9 8 7 6 5 6 9 9 12 7 9 8 9 7 8 10
10 10 10 10 9 8 7 7 8 8 8 8 10 10 9 8 9 8 8 10 9 9 10 7 10 9 10 10
8 7 7 8 7 7 8 8 7 7 7 7 7 7 9 10 13 8 8 10 7 10 8 8 6 10 9 8 8 7 8 8 7
7 8 9 7 8 8 7 6 6 6 7 10 7 7 7 6 11 7 5 5 5 6 7 7 6 7 10
9 9 10 12 10 7 7 7 6 6 5 8 8 8 6
7 8 9 9 7 6 9 12 7 6 8 6 6 7 7 7
7 9 8 7 8 10 13 6 6 5 5 5 7 10 7
9 8 9 8 9 9 7 6 7 8 8 7
7 12 8 8 7 8 8 8 7
10 12 8

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown duringperiod.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
23933	12	Z	150	61/ 69	24	0	67.5	111.5	130.3	8
25563	00	Z	70	65/ 178	13	0	24.5	160.1	161.9	5
26258	00	Z	200	58/ 28	11	1	97.7	-39.6	105.4	5
33837	00	Z	200	46/ 31	12	0	69.5	60.0	91.8	4
42101	00	Z	250	30/ 76	19	2	65.6	-64.8	92.2	9
42182	00	Z	200	29/ 77	28	0	50.7	-63.9	81.6	5
42314	00	Z	300	27/ 95	14	0	57.9	-58.6	82.4	5
42361	00	Z	30	26/ 78	12	0	141.0	197.5	242.7	5
42369	00	Z	50	27/ 81	16	2	112.9	151.9	189.3	5
42369	12	Z	30	27/ 81	9	1	246.0	215.3	327.0	7
42379	00	Z	30	27/ 83	10	4	110.6	233.7	258.6	7
42397	00	Z	300	27/ 88	19	0	57.5	-37.3	68.6	4
42397	12	Z	850	27/ 88	23	0	16.5	-27.7	32.3	5
42647	00	Z	50	23/ 73	15	0	161.6	54.5	170.6	5
42867	12	Z	70	21/ 79	12	0	142.6	19.6	144.0	7
43014	00	Z	200	20/ 75	24	1	59.5	-88.6	106.8	7
43014	12	Z	100	20/ 75	15	0	129.7	-69.0	146.9	4
43041	12	Z	150	19/ 82	18	0	75.8	-99.4	125.0	7
43128	00	Z	150	17/ 78	24	0	95.6	-61.3	113.6	8
43128	12	Z	70	17/ 78	20	1	130.6	100.3	164.6	5
43279	00	Z	150	13/ 80	21	0	42.2	-98.6	107.3	5
43285	12	Z	30	13/ 75	11	0	56.2	257.4	263.4	6
43311	00	Z	500	11/ 73	19	0	44.1	-44.6	62.7	8
43369	00	Z	70	8/ 73	23	1	83.3	-177.4	196.0	8
43371	00	Z	70	8/ 77	18	3	93.9	-203.2	223.9	9
43371	12	Z	100	8/ 77	25	3	124.8	-33.0	129.1	7
44212	12	Z	200	50/ 92	19	0	46.5	120.8	129.4	6
44373	12	Z	250	44/ 104	12	2	69.6	101.9	123.4	5
47158	00	Z	30	35/ 127	27	0	67.5	189.9	201.6	5
48407	00	Z	30	15/ 105	18	3	104.6	313.8	330.8	6
52836	12	Z	70	36/ 98	26	0	79.2	109.3	134.9	7
54135	12	Z	200	44/ 122	28	0	42.1	70.8	82.4	5
54161	00	Z	70	44/ 125	24	0	64.5	130.2	145.4	7
54161	12	Z	70	44/ 125	24	2	55.1	112.7	125.4	6
54497	00	Z	30	40/ 124	21	0	109.5	183.7	213.9	6
54823	00	Z	200	37/ 117	29	0	50.0	81.1	95.3	7
54823	12	Z	200	37/ 117	29	0	44.4	77.4	89.2	4
56739	12	Z	100	25/ 98	29	0	36.9	113.5	119.3	5
56985	00	Z	70	23/ 103	30	0	37.7	133.9	139.1	4
56985	12	Z	100	23/ 103	30	0	39.1	119.8	126.0	4
57083	00	Z	250	35/ 114	25	0	32.1	61.0	68.9	4
57516	12	Z	70	30/ 106	19	1	53.8	149.6	159.0	6
57957	00	Z	100	25/ 110	25	0	36.2	131.7	136.6	5
57972	00	Z	30	26/ 113	20	1	82.9	178.8	197.1	4
58027	00	Z	30	34/ 117	24	0	81.4	157.7	177.5	5
58238	00	Z	100	32/ 119	29	0	34.0	105.4	110.7	5
58606	00	Z	100	29/ 116	28	1	39.4	102.5	109.8	4
58665	00	Z	30	29/ 121	20	0	45.6	187.7	193.2	4
58847	00	Z	70	26/ 119	22	0	38.6	145.2	150.2	5
59265	00	Z	100	23/ 111	27	0	40.0	109.9	116.9	4
59431	00	Z	30	23/ 108	16	0	71.7	188.4	201.6	4
60360	12	Z	300	37/ 8	8	5	29.7	-163.7	166.4	5
60490	12	Z	500	36/ -1	2	19	8.0	-137.0	137.2	9
62306	00	Z	70	31/ 27	19	2	162.8	66.3	175.8	5
62306	12	Z	70	31/ 27	16	3	54.1	296.7	301.6	10
62378	12	Z	50	30/ 31	9	2	33.3	338.3	340.0	7
68240	12	Z	200	-24/ 26	19	0	69.0	-44.8	82.3	4
76394	00	Z	30	26/-100	23	0	43.2	177.4	182.6	4
96163	00	Z	200	-1/ 100	24	0	85.7	-63.6	106.7	8
96237	00	Z	150	-2/ 106	21	0	102.4	-39.6	109.7	6

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – APRIL 1996

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1396

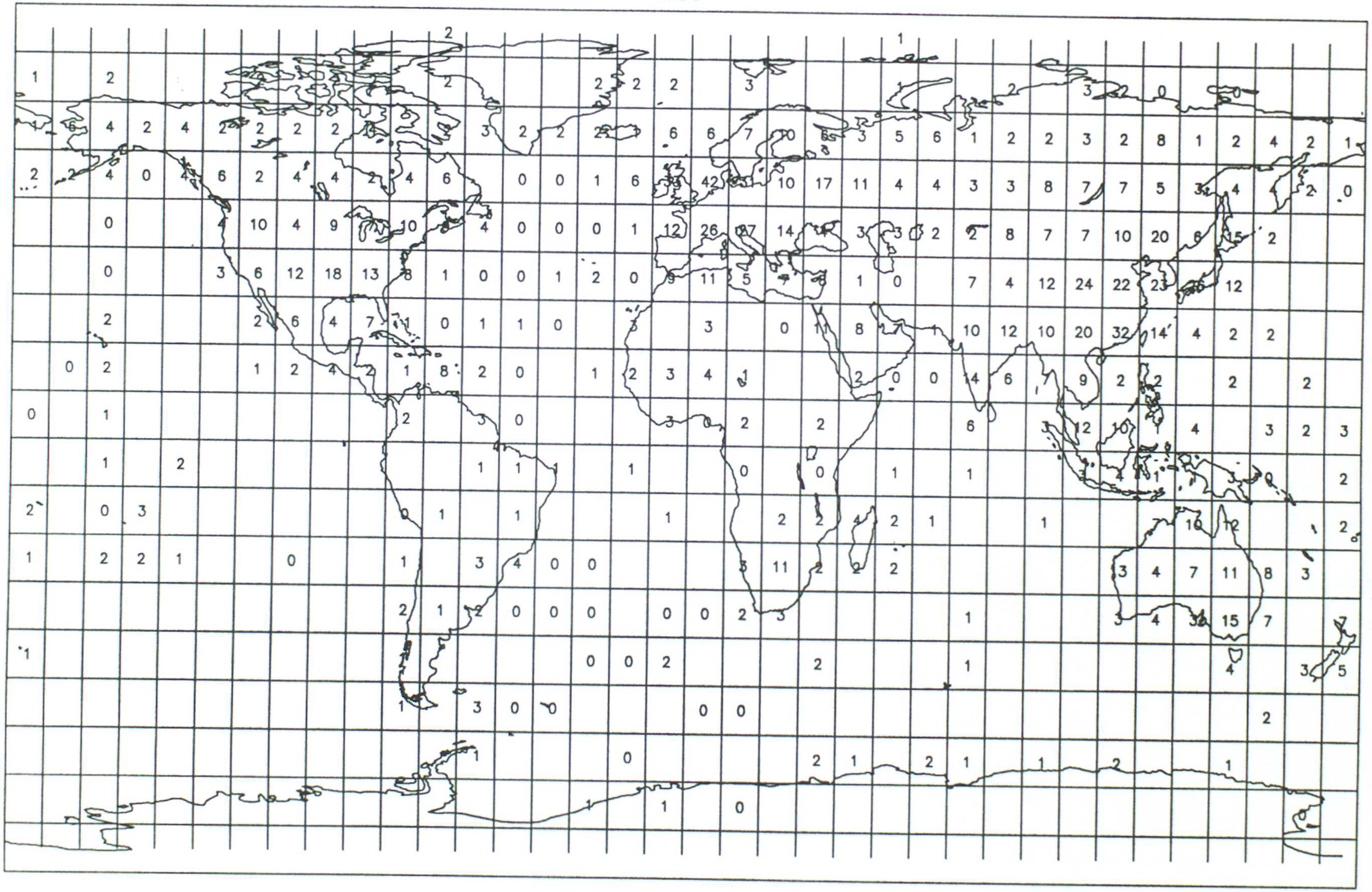

2 1
1 2 2 2 2 2 3 1 2 3 2 0
6 4 2 4 2 2 2 2 3 2 2 2 6 6 7 10 6 3 5 6 1 2 2 3 2 8 1 2 4 2 1
2 2 4 0 4 6 2 4 4 2 4 6 0 0 1 6 3 42 10 17 11 4 4 3 3 8 7 7 5 3 4 4 2 0
0 4 10 4 9 10 4 0 0 0 1 12 26 27 14 3 3 2 2 8 7 7 10 20 6 5 2
0 3 6 12 18 13 8 1 0 0 1 2 0 9 11 5 7 8 1 0 7 4 12 24 22 23 6 12
2 2 6 4 7 1 0 1 1 0 3 3 0 1 8 7 1 10 12 10 20 32 14 4 2 2
0 2 1 2 4 2 1 8 2 0 1 2 3 4 1 2 0 0 14 6 7 9 2 2 2 2
0 1 2 3 0 3 0 2 2 6 3 12 10 1 4 3 2 3
1 2 1 1 1 1 0 0 1 1 3 4 1 0 2
2 0 3 0 1 1 1 2 2 4 2 1 1 16 12 2
1 2 2 1 0 1 3 4 0 0 3 11 2 2 2 3 4 7 11 8 3
2 1 2 0 0 0 0 0 2 3 1 3 4 32 15 7 7
1 0 0 2 2 1 4 3 5
1 3 0 0 0 0 2
1 0 2 1 2 1 1 2 1
1 1 0

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	: ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
42339	00	V	150	26/ 73	10	0	20	-13.0	-8.7	17.8	2
43014	00	V	200	20/ 75	15	0	13	10.7	-0.8	18.1	1
56146	00	V	200	32/ 100	23	0	8	12.2	4.1	18.4	2
56146	12	V	200	32/ 100	23	0	4	11.8	1.1	15.7	1
78384	12	V	250	19/ -81	23	0	13	5.0	4.5	15.3	1
89022	12	V	300	-75/ -27	15	0	20	-3.8	-3.2	15.3	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – APRIL 1996

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1237

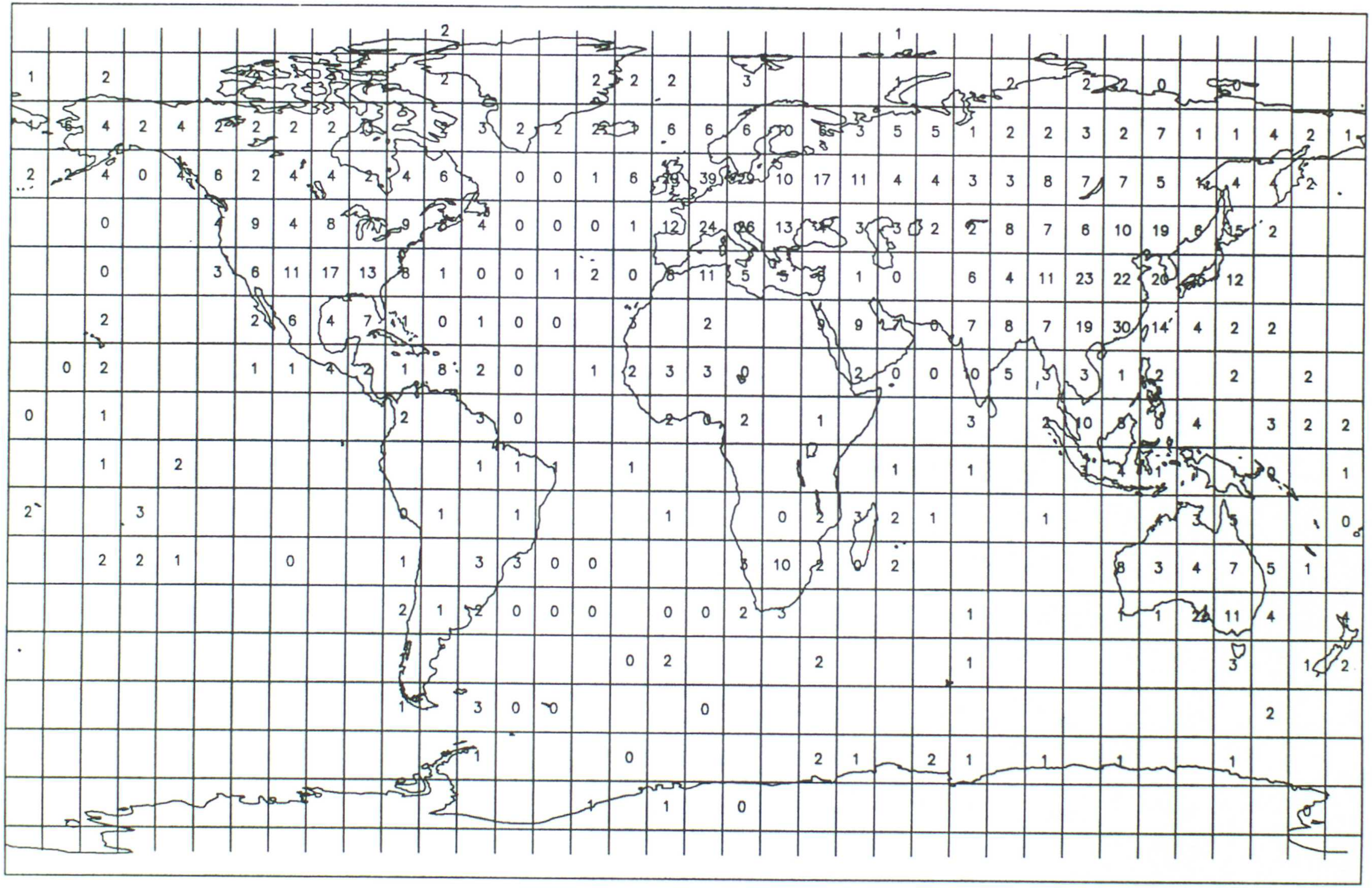

2 1
1 2 2 2 2 2 3 2 2 0 0
6 4 2 4 2 2 2 2 2 3 2 2 2 6 6 6 10 6 3 5 5 1 2 2 3 2 7 1 1 4 2 1
2 2 4 0 4 6 2 4 4 2 4 6 0 0 1 6 39 39 29 10 17 11 4 4 3 3 8 7 7 5 12 4 4 2
0 4 9 4 8 9 4 0 0 0 1 12 24 36 13 3 3 2 2 8 7 6 10 19 6 5 2
0 3 6 11 17 13 8 1 0 0 1 2 0 8 11 5 5 6 1 0 6 4 11 23 22 20 12
2 2 6 4 7 1 0 1 0 0 3 2 9 9 0 7 8 7 19 30 14 4 2 2
0 2 1 1 4 2 1 8 2 0 1 2 3 3 0 2 0 0 10 5 3 3 1 2 2 2
0 1 2 3 0 2 0 2 1 3 2 10 8 0 4 3 2 2
1 2 1 1 1 1 1 1 3 4 1 0 1
2 3 0 1 1 1 0 2 3 2 1 1 3 5 0
2 2 1 0 1 3 3 0 0 3 10 2 0 2 8 3 4 7 5 1
2 1 2 0 0 0 0 0 2 3 1 1 1 22 11 4 4
0 2 2 1 3 1 2
1 3 0 0 0 2
1 0 2 1 2 1 1 1 1
1 1 0

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
16144	12	DD	45/ 12	18	30.9	6.9	22.3
17030	00	DD	41/ 36	23	-10.1	3.6	29.3
42339	12	DD	26/ 73	12	10.0	9.7	17.5
48568	00	DD	7/ 101	10	15.6	6.9	20.1
53614	00	DD	38/ 106	28	-11.8	6.2	11.8
67083	12	DD	-19/ 47	17	13.4	5.6	16.2
96441	12	DD	3/ 113	17	10.3	6.8	23.6

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: April, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

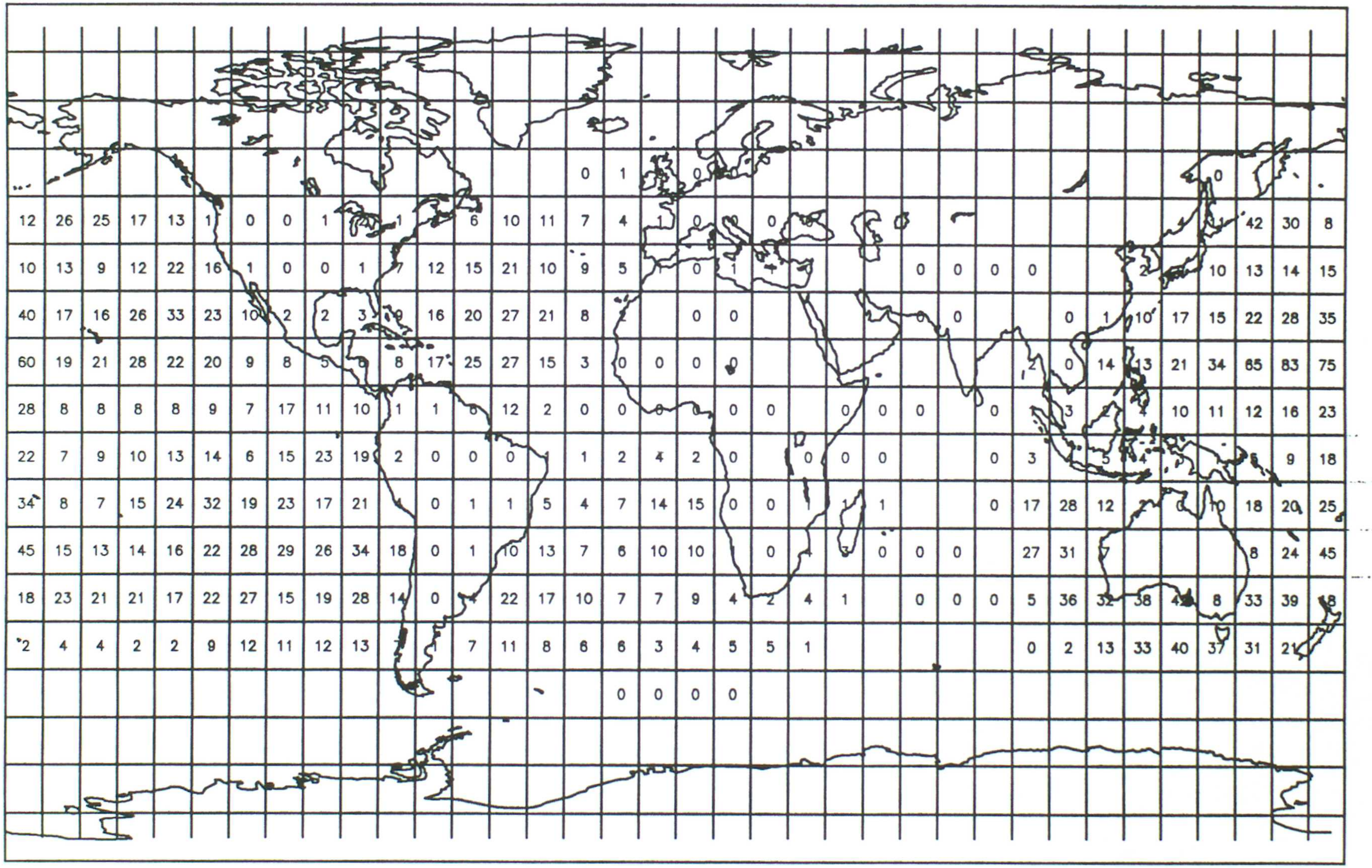
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
APRIL 1996


0 1 0 0
12 26 25 17 13 1 0 0 1 1 6 10 11 7 4 1 0 0 0 0 4 1 42 30 8
10 13 9 12 22 16 1 0 0 1 7 12 15 21 10 9 5 1 0 1 1 0 0 0 0 0 2 10 13 14 15
40 17 16 26 33 23 10 2 2 3 9 16 20 27 21 8 2 0 0 0 0 0 1 10 17 15 22 28 35
60 19 21 28 22 20 9 8 5 6 8 17 25 27 15 3 0 0 0 0 2 0 14 13 21 34 65 83 75
28 8 8 8 8 9 7 17 11 10 1 1 6 12 2 0 0 0 0 0 0 0 0 0 0 1 3 2 4 10 11 12 16 23
22 7 9 10 13 14 6 15 23 19 2 0 0 0 1 1 2 4 2 0 0 0 0 0 3 4 5 4 5 9 18
34 8 7 15 24 32 19 23 17 21 1 0 1 1 5 4 7 14 15 0 0 1 1 1 0 17 28 12 2 0 10 18 20 25
45 15 13 14 16 22 28 29 26 34 18 0 1 10 13 7 6 10 10 1 0 4 3 0 0 0 27 31 7 8 24 45
18 23 21 21 17 22 27 15 19 28 14 0 4 22 17 10 7 7 9 4 2 4 1 0 0 0 5 36 32 38 42 8 33 39 18
2 4 4 2 2 9 12 11 12 13 7 1 7 11 8 6 6 3 4 5 5 1 0 2 13 33 40 37 31 21
0 0 0 0

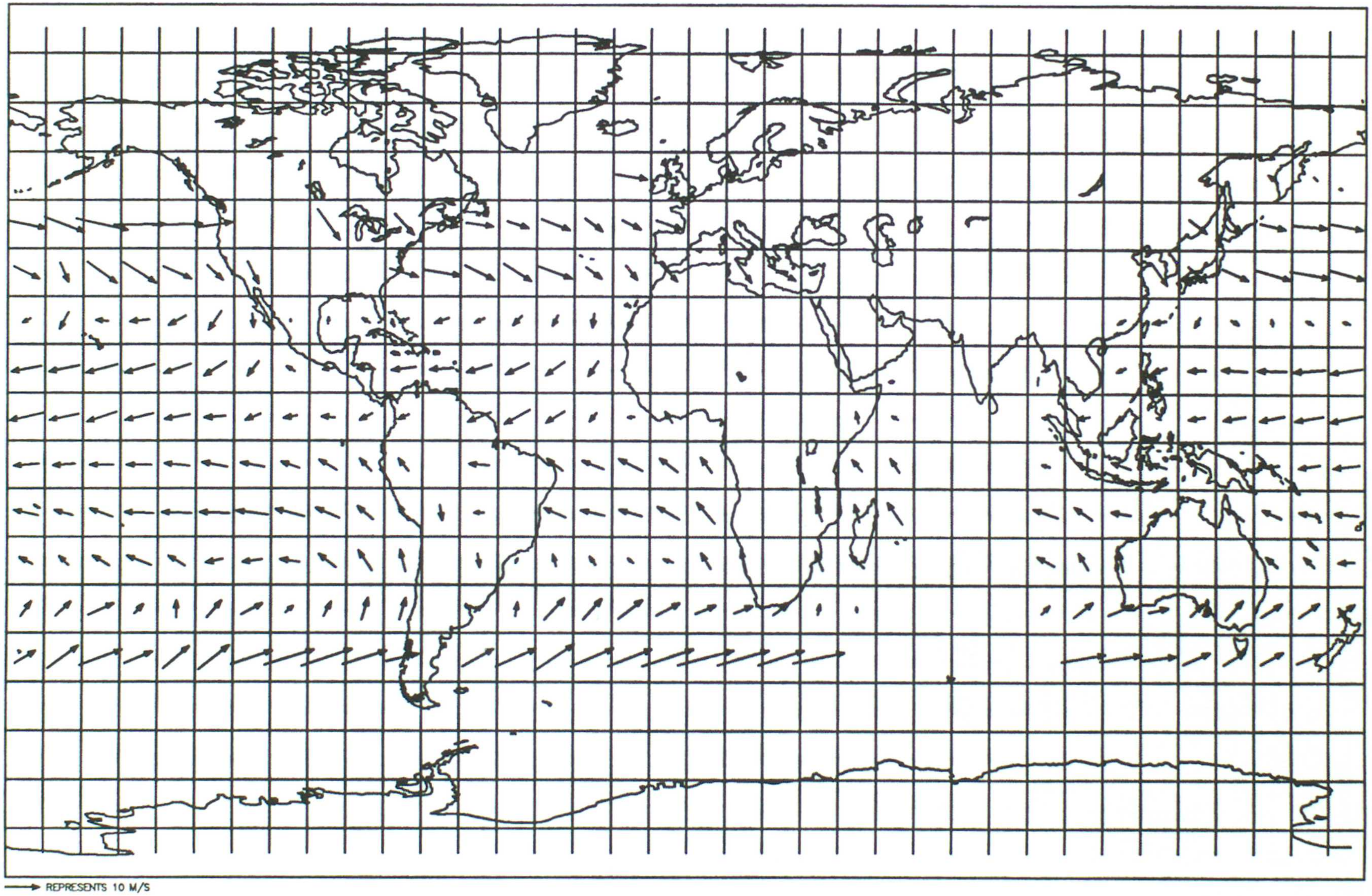
SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA

FIGURE 11

APRIL 1996

ALL OBSERVATIONS

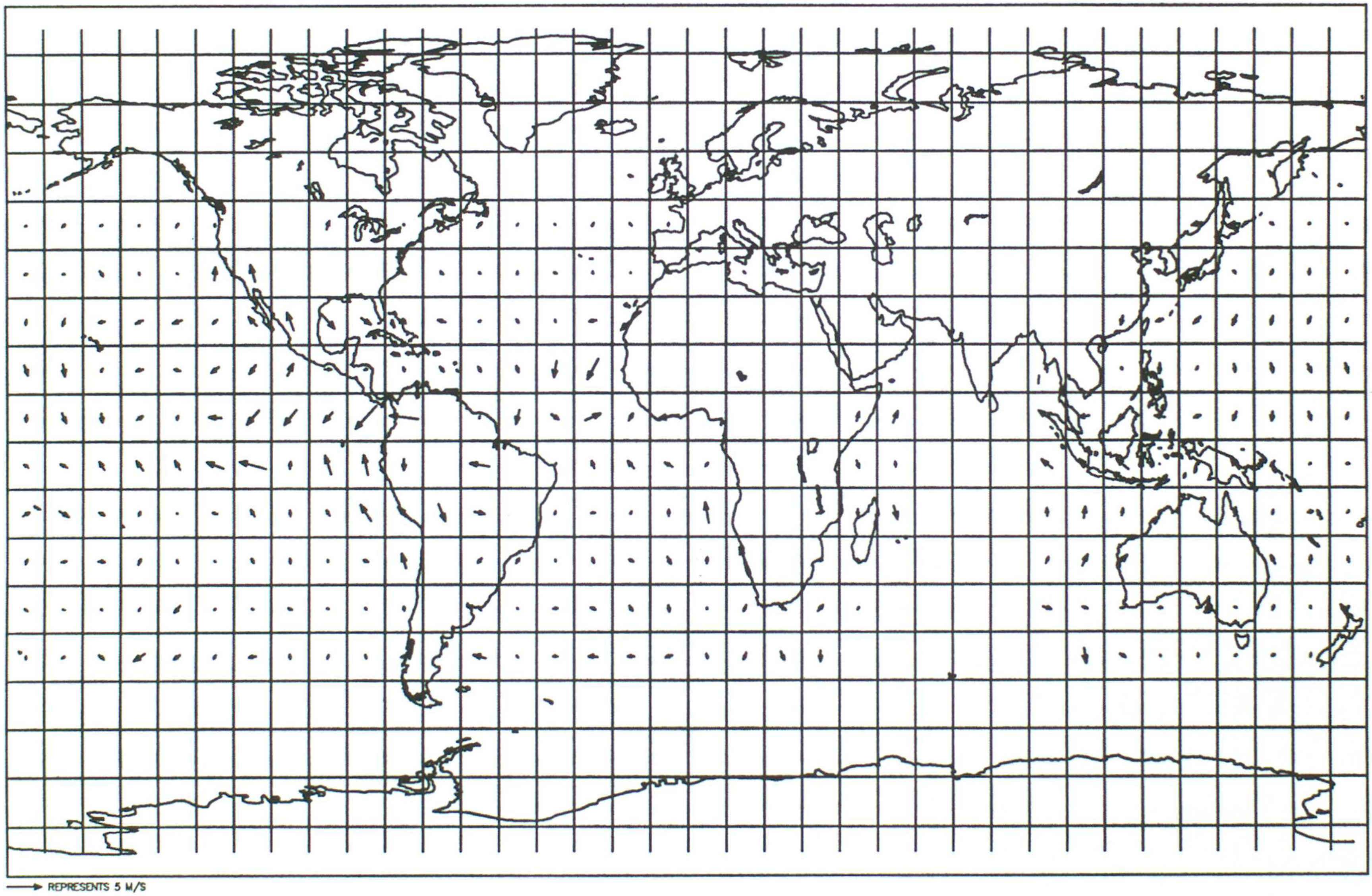
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

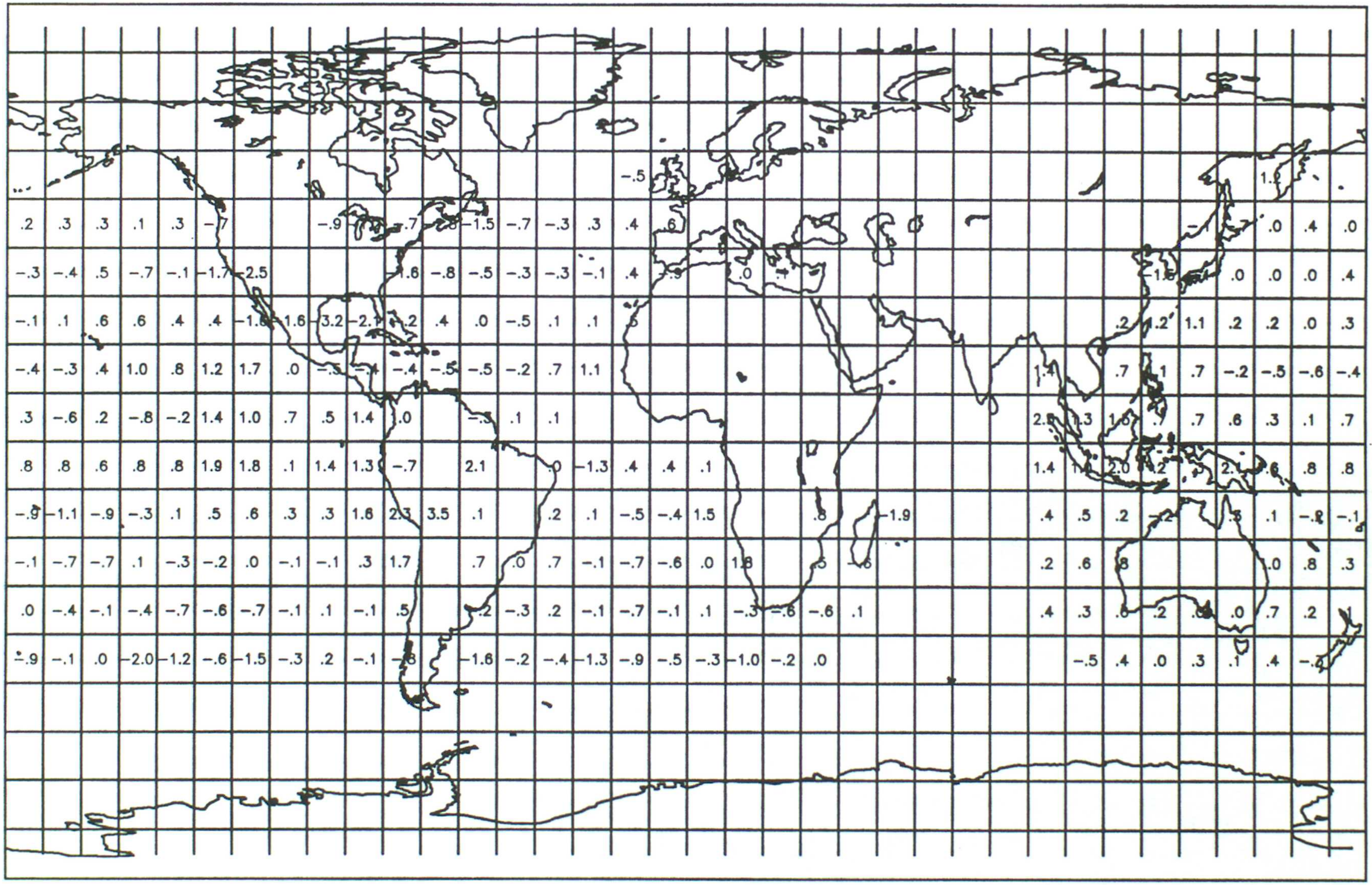
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA

FIGURE 12

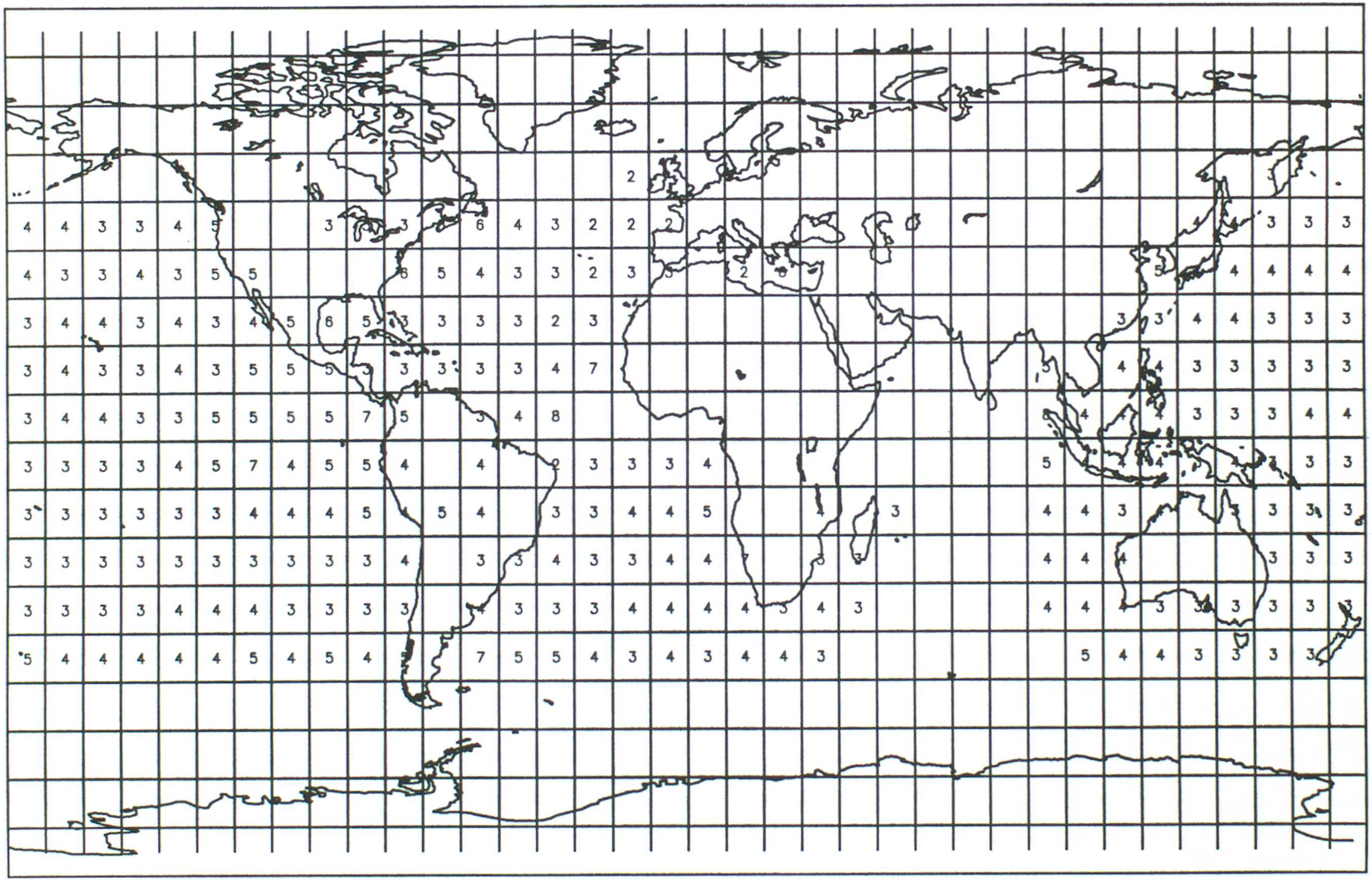
APRIL 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



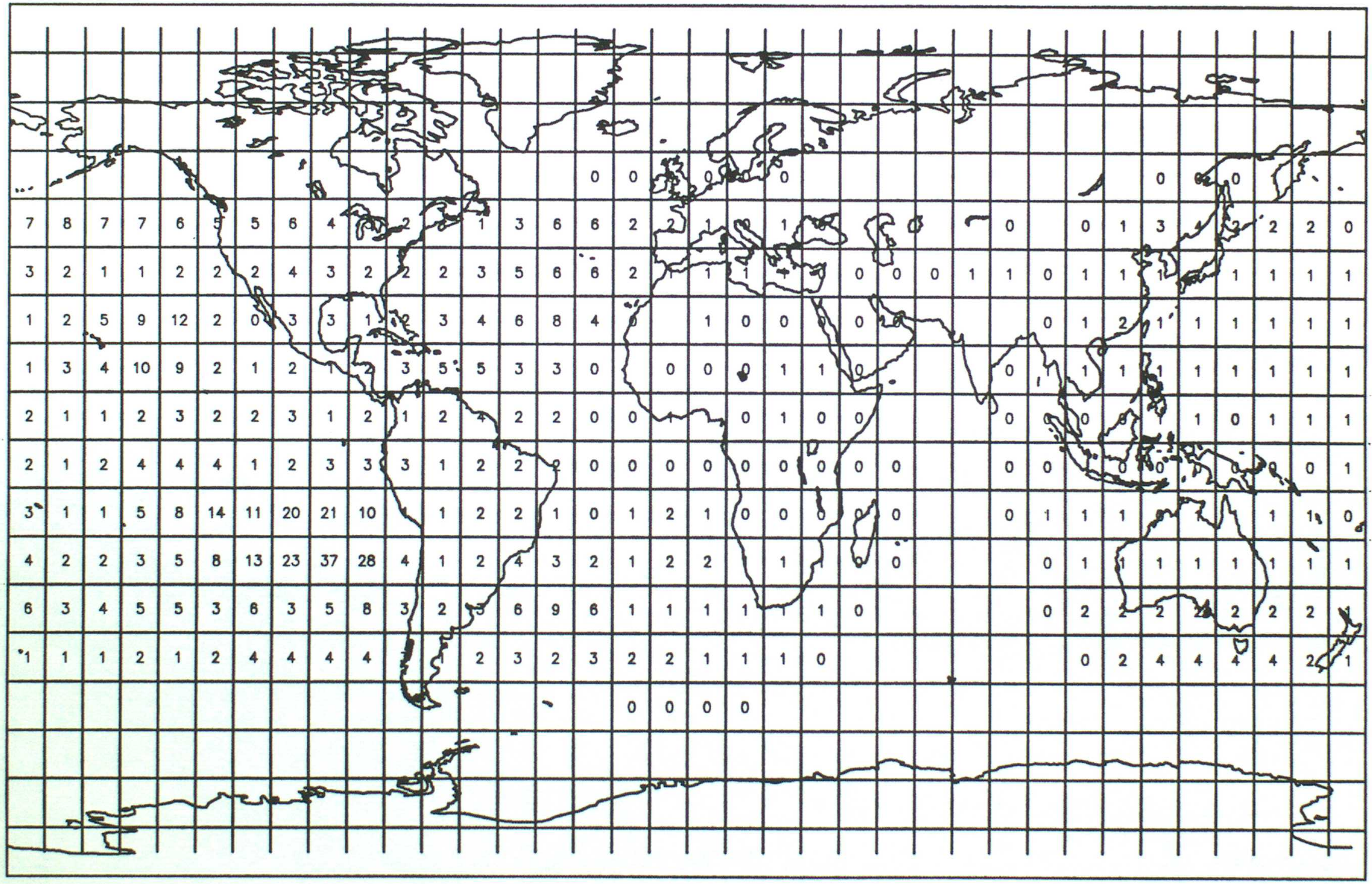
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
APRIL 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.5 1.2
.2 .3 .3 .1 .3 -.7 -.9 -.7 -.8 -1.5 -.7 -.3 .3 .4 .6 -.1 -.7 .0 .4 .0
-.3 -.4 .5 -.7 -.1 -1.7 -2.5 -1.6 -.8 -.5 -.3 -.3 -.1 .4 -.9 .0 -1.5 .0 .0 .0 .4
-.1 .1 .6 .6 .4 .4 -1.6 -1.6 -3.2 -2.1 -.2 .4 .0 -.5 .1 .1 .5 .2 1.2 1.1 .2 .2 .0 .3
-.4 -.3 .4 1.0 .8 1.2 1.7 .0 -.3 -.4 -.4 -.5 -.5 -.2 .7 1.1 1.4 .7 .1 .7 -.2 -.5 -.6 -.4
.3 -.6 .2 -.8 -.2 1.4 1.0 .7 .5 1.4 .0 -.3 .1 .1 2.5 1.3 1.6 .7 .7 .6 .3 .1 .7
.8 .8 .6 .8 .8 1.9 1.8 .1 1.4 1.3 -.7 2.1 .0 -1.3 .4 .4 .1 1.4 1.6 2.0 .2 .5 2.1 .6 .8 .8
-.9 -1.1 -.9 -.3 .1 .5 .6 .3 .3 1.6 2.3 3.5 .1 .2 .1 -.5 -.4 1.5 .8 -1.9 .4 .5 .2 -.2 .3 .1 -.2 -.1
-.1 -.7 -.7 .1 -.3 -.2 .0 -.1 -.1 .3 1.7 .7 .0 .7 -.1 -.7 -.6 .0 1.8 .5 -.6 .2 .6 .8 .0 .8 .3
.0 -.4 -.1 -.4 -.7 -.6 -.7 -.1 .1 -.1 .5 .2 -.3 .2 -.1 -.7 -.1 .1 -.3 -.6 -.6 .1 .4 .3 .6 .2 .6 .0 .7 .2 .1
-.9 -.1 .0 -2.0 -1.2 -.6 -1.5 -.3 .2 -.1 -.8 -1.6 -.2 -.4 -1.3 -.9 -.5 -.3 -1.0 -.2 .0 -.5 .4 .0 .3 .1 .4 -.2

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
APRIL 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


2 3
4 4 3 3 4 5 3 3 6 4 3 2 2 2 4 4 3 3 3
4 3 3 4 3 5 5 6 5 4 3 3 2 3 3 2 6 5 4 4 4 4
3 4 4 3 4 3 4 5 6 5 3 3 3 3 2 3 3 3 4 4 3 3 3
3 4 3 3 4 3 5 5 5 3 3 3 3 3 4 7 5 4 4 3 3 3 3 3
3 4 4 3 3 5 5 5 5 7 5 3 4 8 3 4 4 4 3 3 3 4 4
3 3 3 3 4 5 7 4 5 5 4 4 2 3 3 3 4 5 4 4 4 4 3 3 3
3 3 3 3 3 3 4 4 4 5 4 5 4 3 3 4 4 5 4 3 4 4 3 3 3 3 3
3 3 3 3 3 3 3 3 3 3 4 3 3 4 3 3 4 4 7 3 3 4 4 4 3 3 3
3 3 3 3 4 4 4 3 3 3 3 4 3 3 3 4 4 4 4 3 4 3 4 4 4 3 3 3 3 3 3
5 4 4 4 4 4 5 4 5 4 5 7 5 5 4 3 4 3 4 4 3 5 4 4 3 3 3 3

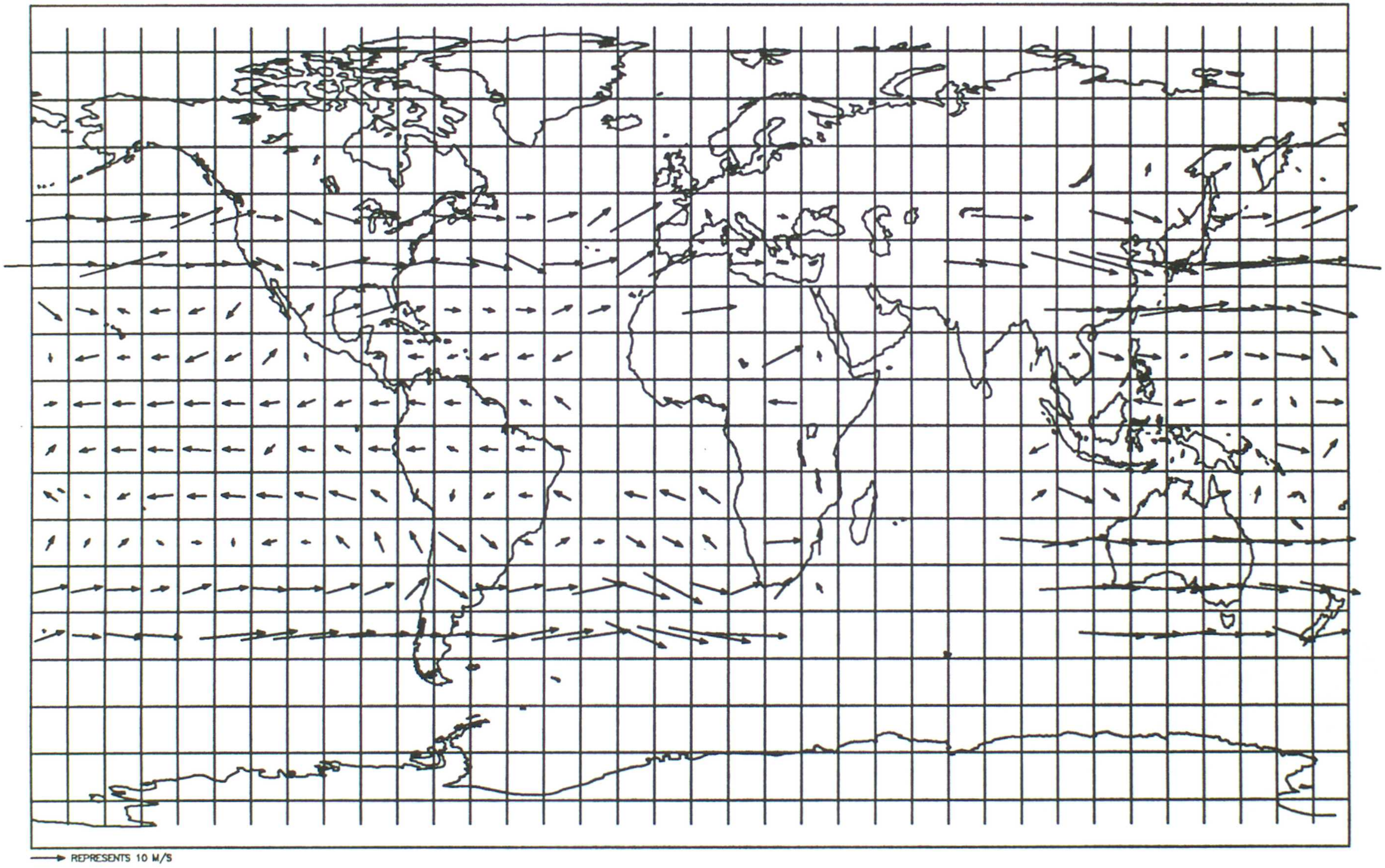
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
APRIL 1996



															0	0		0	0	0										0	0	0			
7	8	7	7	6	5	5	6	4		2		1	3	6	6	2	2	1	0	1	0					0		0	1	3	4	2	2	2	0
3	2	1	1	2	2	2	4	3	2	2	2	3	5	6	6	2	1	1	1	1	0	0	0	0	1	1	0	1	1	1		1	1	1	1
1	2	5	9	12	2	0	3	3	1	2	3	4	6	8	4	0		1	0	0	0	0	0				0	1	2	1	1	1	1	1	1
1	3	4	10	9	2	1	2	1	2	3	5	5	3	3	0		0	0	0	1	1	0				0	1	1	1	1	1	1	1	1	1
2	1	1	2	3	2	2	3	1	2	1	2	4	2	2	0	0	1		0	1	0	0				0	0	0	0	1	1	0	1	1	1
2	1	2	4	4	4	1	2	3	3	3	1	2	2	2	0	0	0	0	0	0	0	0	0			0	0		0	0	0	0	0	0	1
3	1	1	5	8	14	11	20	21	10		1	2	2	1	0	1	2	1	0	0	0	0	0			0	1	1	1	0	1		1	1	0
4	2	2	3	5	8	13	23	37	28	4	1	2	4	3	2	1	2	2		1	1	0	0				0	1	1	1	1	1	1	1	1
6	3	4	5	5	3	6	3	5	8	3	2	3	6	9	6	1	1	1	1	1	1	0					0	2	2	2	2	2	2	2	1
1	1	1	2	1	2	4	4	4	4		1	2	3	2	3	2	2	1	1	1	0							0	2	4	4	4	4	2	1
																0	0	0	0																

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
APRIL 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16


REPRESENTS 10 M/S

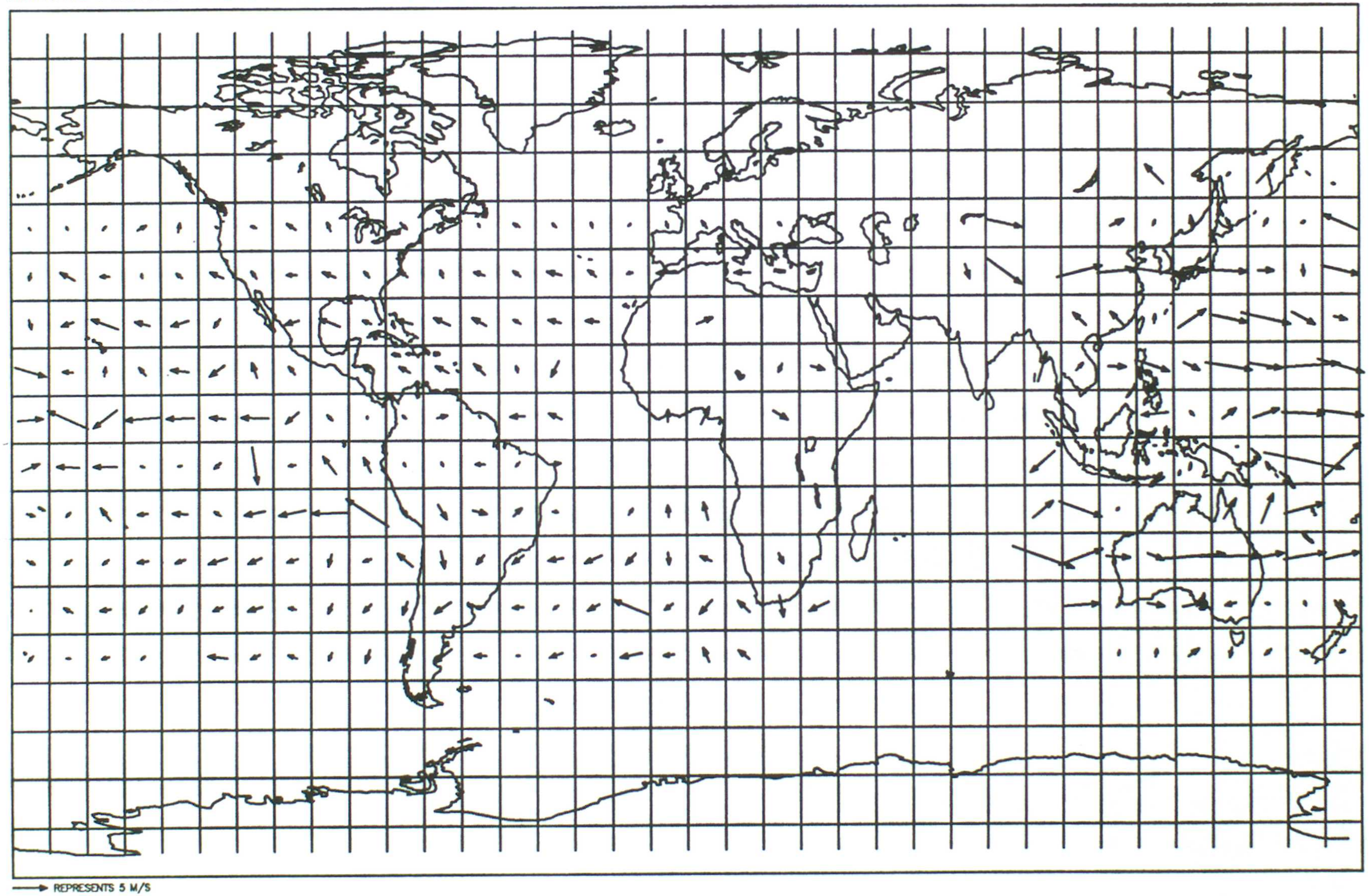
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA

APRIL 1996

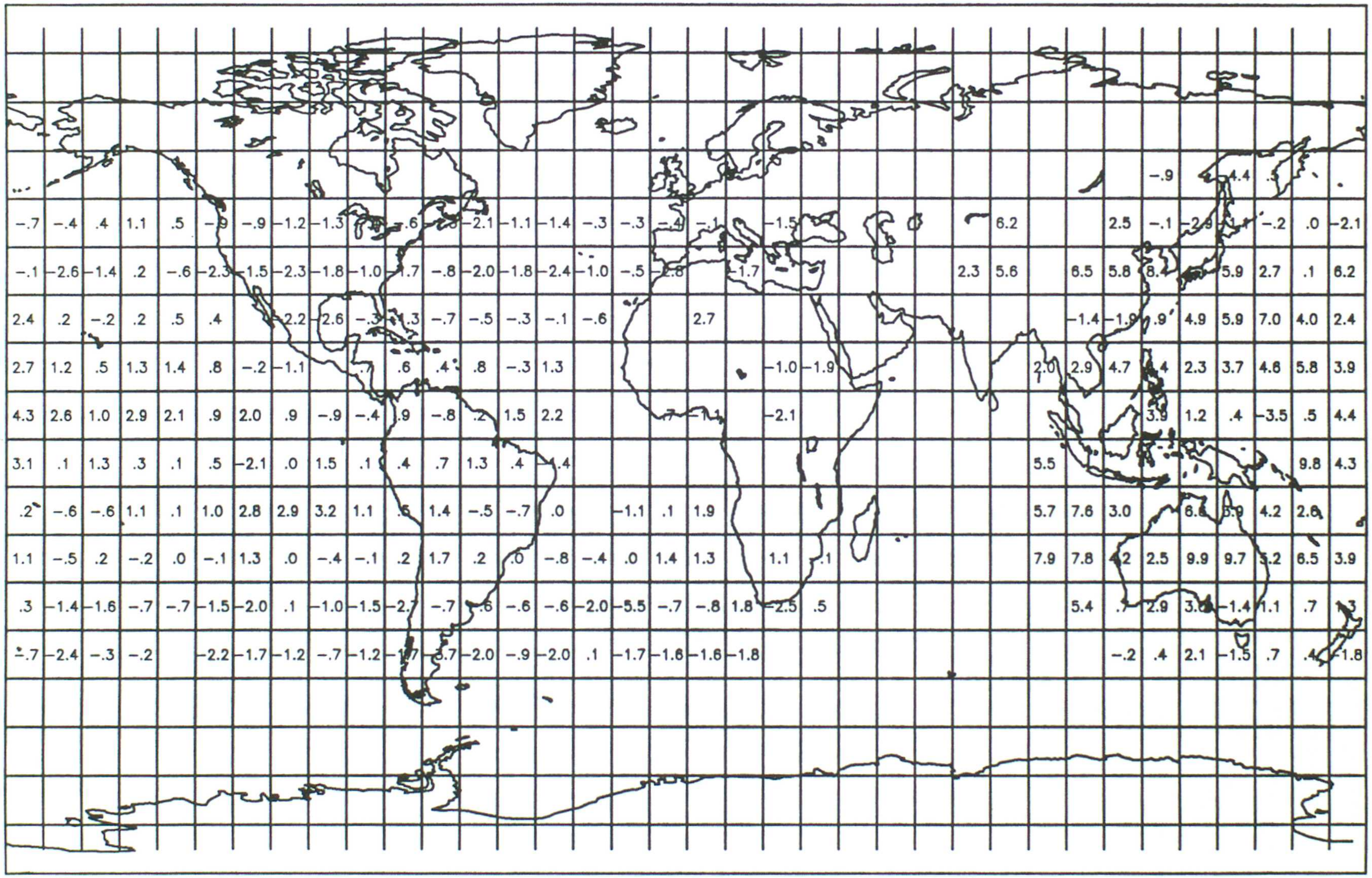
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 17

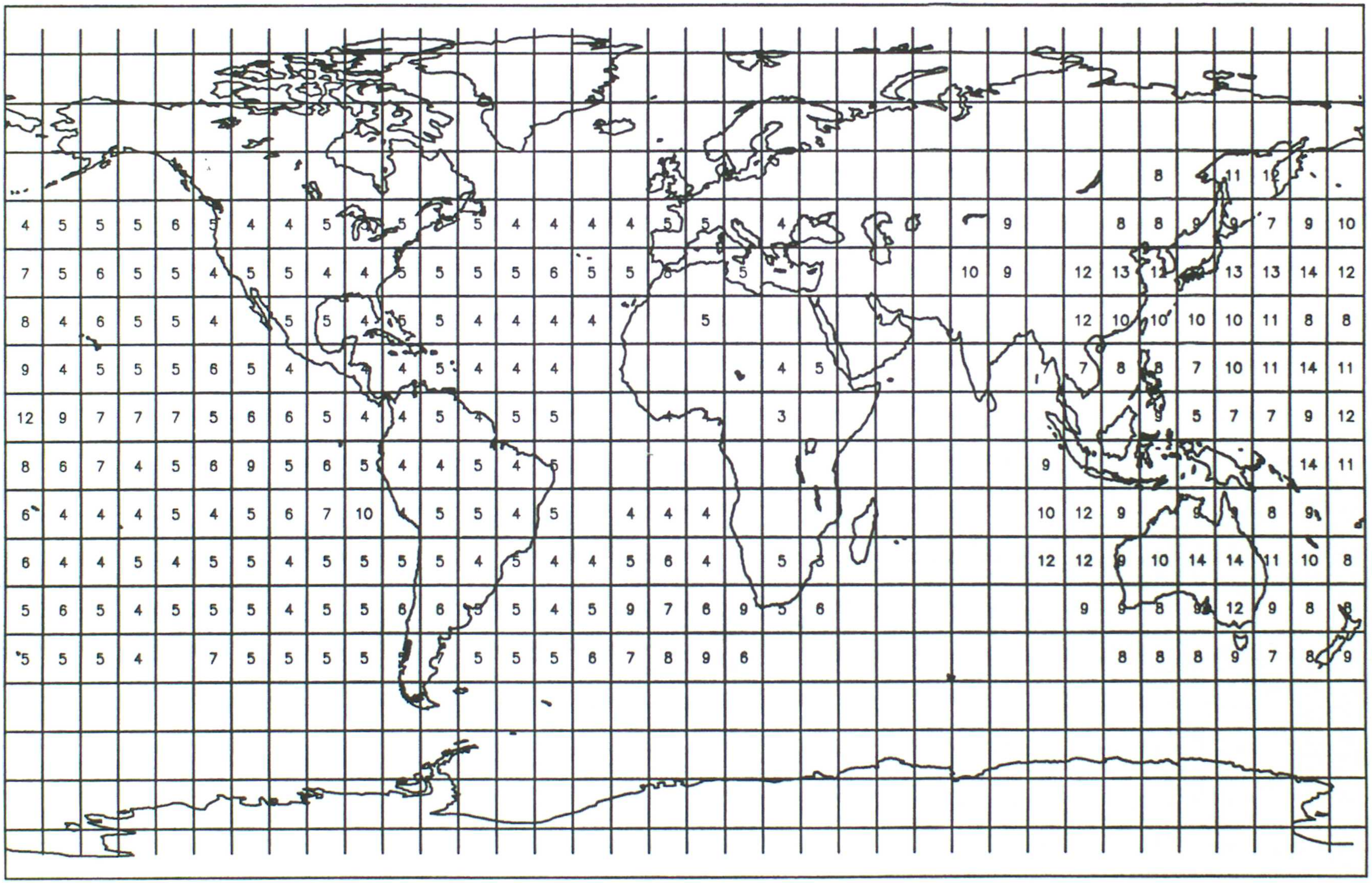

REPRESENTS 5 M/S

SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
APRIL 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

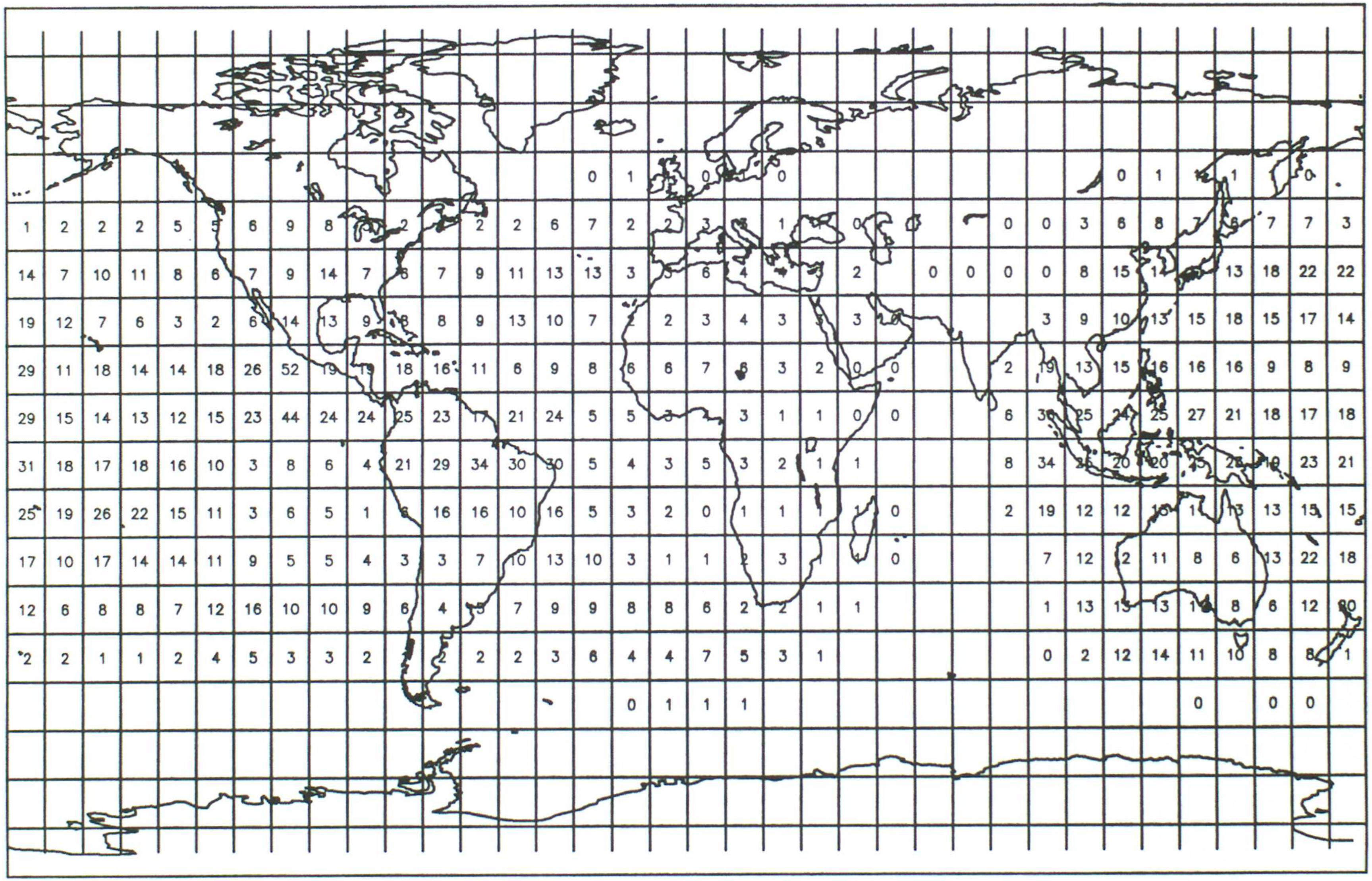


-.9 4.4
-.7 -.4 .4 1.1 .5 -.9 -.9 -1.2 -1.3 .6 -2.1 -1.1 -1.4 -.3 -.3 -.4 -.1 -1.5 6.2 2.5 -.1 -2.9 -.2 .0 -2.1
-.1 -2.6 -1.4 .2 -.6 -2.3 -1.5 -2.3 -1.8 -1.0 -1.7 -.8 -2.0 -1.8 -2.4 -1.0 -.5 -2.8 -1.7 2.3 5.6 6.5 5.8 8.4 5.9 2.7 .1 6.2
2.4 .2 -.2 .2 .5 .4 -2.2 -2.6 -.3 -1.3 -.7 -.5 -.3 -.1 -.6 2.7 -1.4 -1.9 .9 4.9 5.9 7.0 4.0 2.4
2.7 1.2 .5 1.3 1.4 .8 -.2 -1.1 .7 .6 .4 .8 -.3 1.3 -1.0 -1.9 2.0 2.9 4.7 .4 2.3 3.7 4.6 5.8 3.9
4.3 2.6 1.0 2.9 2.1 .9 2.0 .9 -.9 -.4 .9 -.8 .2 1.5 2.2 .7 -1.1 -2.1 3.9 1.2 .4 -3.5 .5 4.4
3.1 .1 1.3 .3 .1 .5 -2.1 .0 1.5 .1 .4 .7 1.3 .4 -1.4 5.5 9.8 4.3
.2 -.6 -.6 1.1 .1 1.0 2.8 2.9 3.2 1.1 .5 1.4 -.5 -.7 .0 -1.1 .1 1.9 5.7 7.6 3.0 6.6 5.9 4.2 2.6
1.1 -.5 .2 -.2 .0 -.1 1.3 .0 -.4 -.1 .2 1.7 .2 .0 -.8 -.4 .0 1.4 1.3 1.1 .1 7.9 7.8 4.2 2.5 9.9 9.7 5.2 6.5 3.9
.3 -1.4 -1.6 -.7 -.7 -1.5 -2.0 .1 -1.0 -1.5 -2.7 -.7 .6 -.6 -.6 -2.0 -5.5 -.7 -.8 1.8 -2.5 .5 5.4 .7 2.9 3.6 -1.4 1.1 .7 1.3
-.7 -2.4 -.3 -.2 -2.2 -1.7 -1.2 -.7 -1.2 -1.7 -3.7 -2.0 -.9 -2.0 .1 -1.7 -1.6 -1.6 -1.8 -.2 .4 2.1 -1.5 .7 .4 -1.8

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
APRIL 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

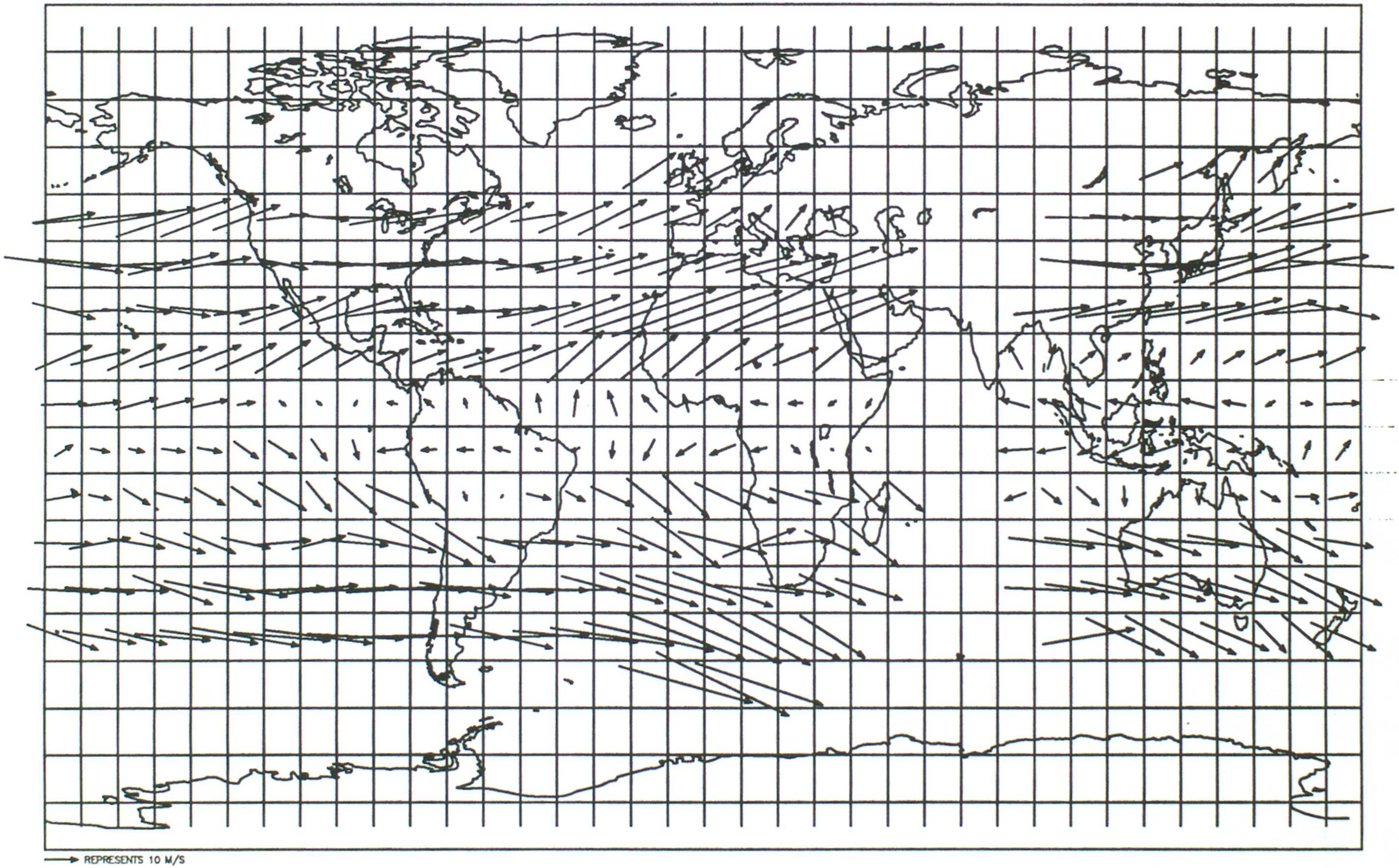

8 11 12
4 5 5 5 6 5 4 4 5 5 5 4 4 4 4 5 5 4 9 8 8 9 9 7 9 10
7 5 6 5 5 4 5 5 4 4 5 5 5 5 6 5 5 6 5 10 9 12 13 12 13 13 14 12
8 4 6 5 5 4 5 5 4 5 5 4 4 4 4 5 12 10 10 10 10 11 8 8
9 4 5 5 5 6 5 4 4 4 5 4 4 4 4 5 7 7 8 8 7 10 11 14 11
12 9 7 7 7 5 6 6 5 4 4 5 4 5 5 4 3 9 5 7 7 9 12
8 6 7 4 5 6 9 5 6 5 4 4 5 4 5 9 14 11
6 4 4 4 5 4 5 6 7 10 4 5 5 4 5 4 4 4 10 12 9 9 9 8 9
6 4 4 5 4 5 5 4 5 5 5 5 4 5 4 4 5 6 4 5 5 12 12 9 10 14 14 11 10 8
5 6 5 4 5 5 5 4 5 5 6 6 5 5 4 5 9 7 6 9 5 6 9 9 8 9 12 9 8 8
5 5 5 4 7 5 5 5 5 5 7 5 5 5 6 7 8 9 6 8 8 8 9 7 8 9

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
APRIL 1996



SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
APRIL 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

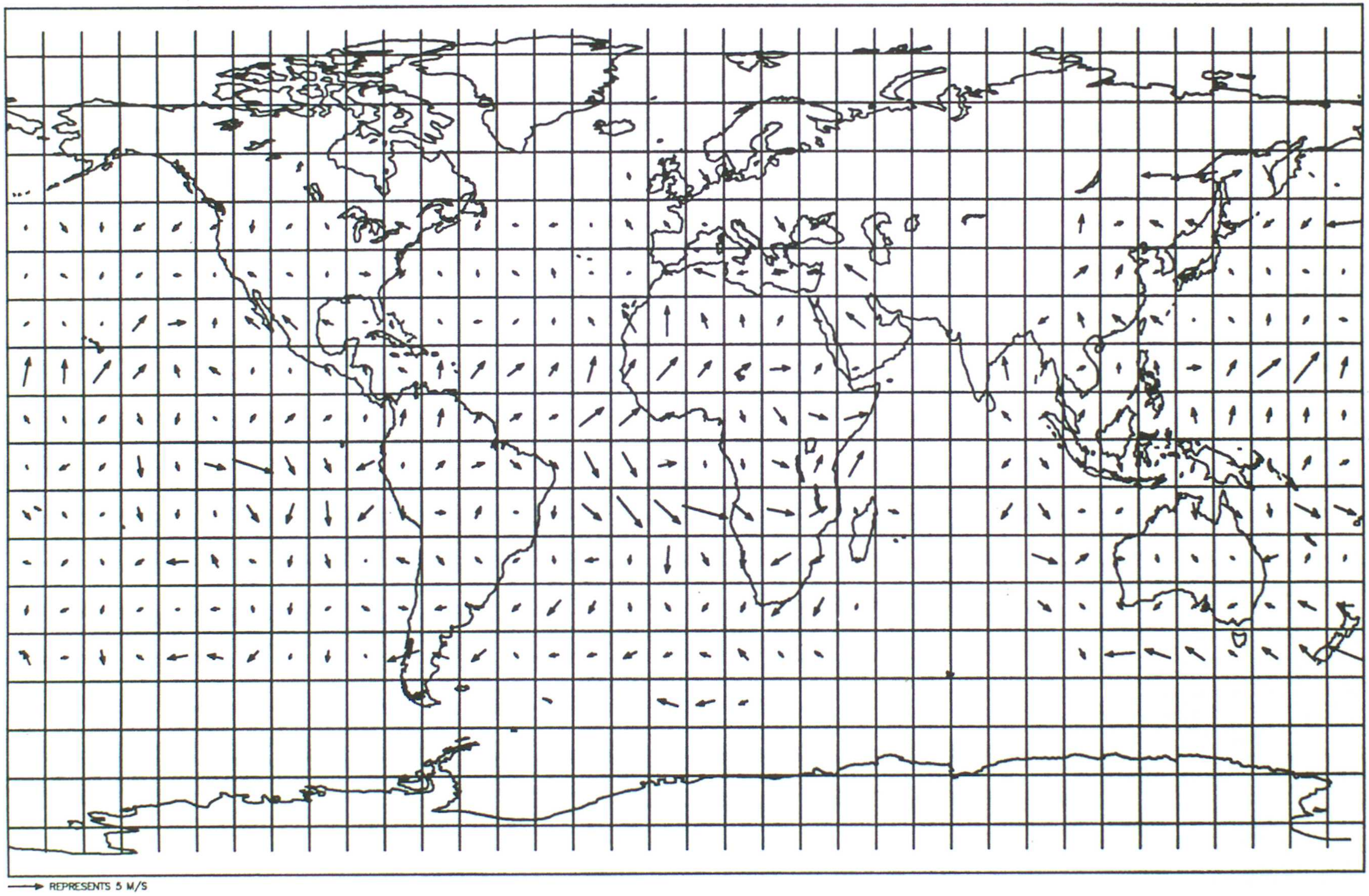
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA

FIGURE 22

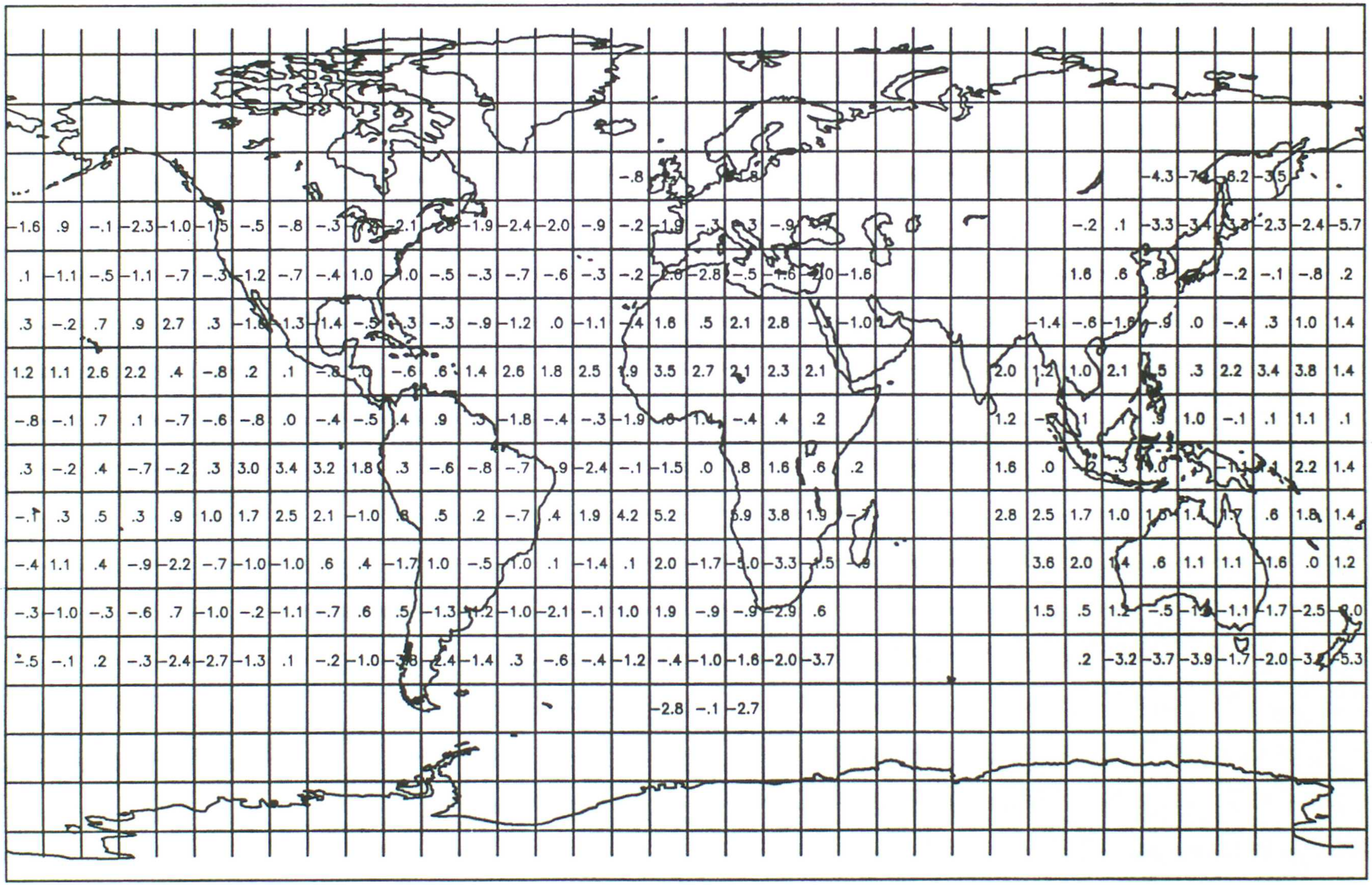
APRIL 1996

ALL OBSERVATIONS

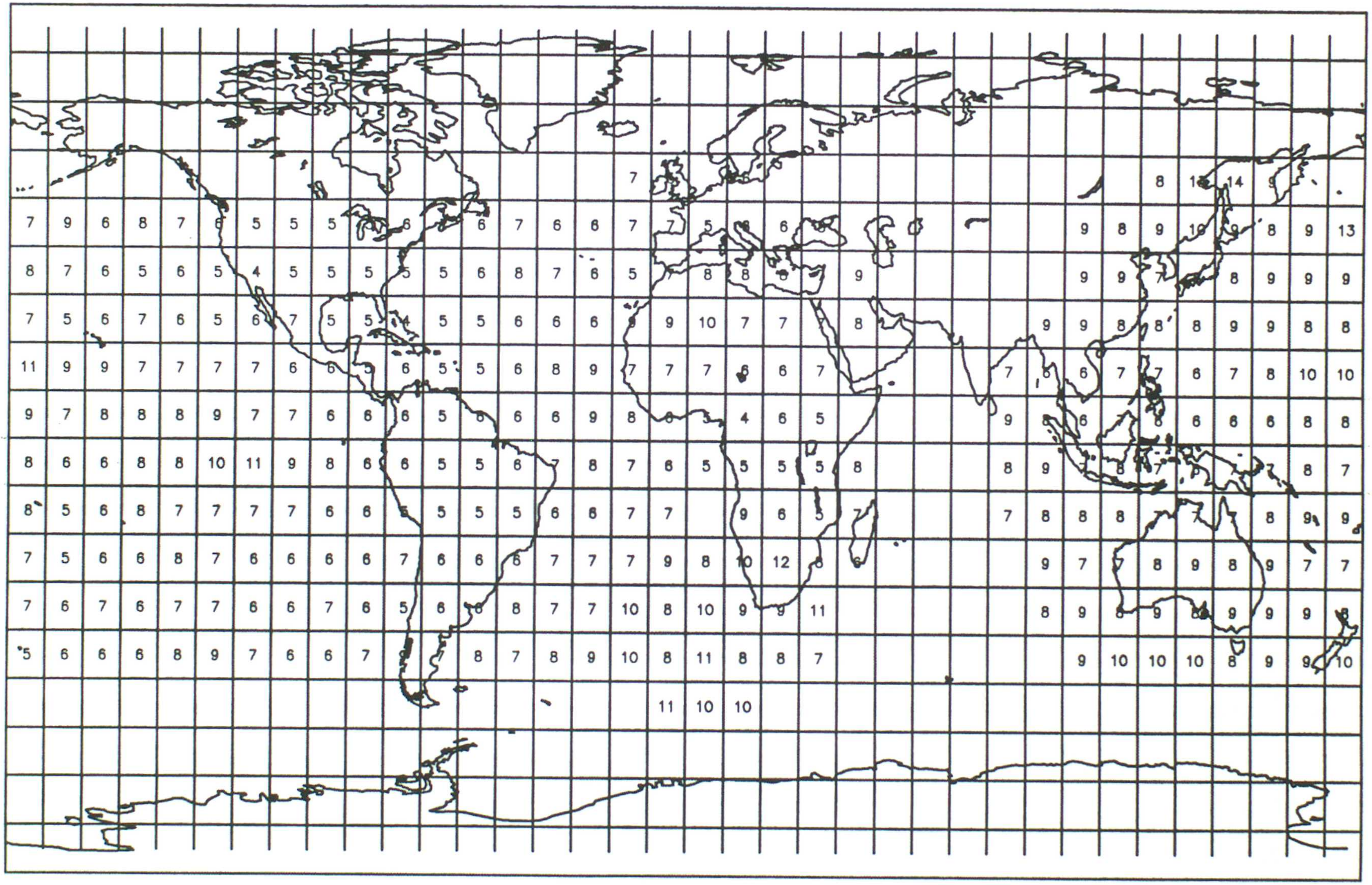
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


→ REPRESENTS 5 M/S

SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
APRIL 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.8 -.8 -4.3 -7.4 -8.2 -3.5
-1.6 .9 -.1 -2.3 -1.0 -1.5 -.5 -.8 -.3 -1.2 -2.1 -.6 -1.9 -2.4 -2.0 -.9 -.2 -1.9 -.3 -.3 -.9 -.7 -.2 .1 -3.3 -3.4 -3.3 -2.3 -2.4 -5.7
.1 -1.1 -.5 -1.1 -.7 -.3 -1.2 -.7 -.4 1.0 -1.0 -.5 -.3 -.7 -.6 -.3 -.2 -2.0 -2.8 -.5 -1.6 -2.0 -1.6 1.6 .6 .8 -.2 -.1 -.8 .2
.3 -.2 .7 .9 2.7 .3 -1.6 -1.3 -1.4 -.5 -.3 -.3 -.9 -1.2 .0 -1.1 -.4 1.6 .5 2.1 2.8 -.3 -1.0 -1.4 -.6 -1.6 -.9 .0 -.4 .3 1.0 1.4
1.2 1.1 2.6 2.2 .4 -.8 .2 .1 -.8 .0 -.6 .6 1.4 2.6 1.8 2.5 1.9 3.5 2.7 2.1 2.3 2.1 2.0 1.2 1.0 2.1 .5 .3 2.2 3.4 3.8 1.4
-.8 -.1 .7 .1 -.7 -.6 -.8 .0 -.4 -.5 .4 .9 .3 -1.8 -.4 -.3 -1.9 -.6 1.4 -.4 .4 .2 1.2 -.7 .1 .1 .9 1.0 -.1 .1 1.1 .1
.3 -.2 .4 -.7 -.2 .3 3.0 3.4 3.2 1.8 .3 -.6 -.8 -.7 -.9 -2.4 -.1 -1.5 .0 .8 1.6 .6 .2 1.6 .0 -.2 .3 1.0 .3 -1.1 -1.1 2.2 1.4
-.1 .3 .5 .3 .9 1.0 1.7 2.5 2.1 -1.0 .8 .5 .2 -.7 .4 1.9 4.2 5.2 5.9 3.8 1.9 -.7 2.8 2.5 1.7 1.0 1.5 1.4 1.7 .6 1.8 1.4
-.4 1.1 .4 -.9 -2.2 -.7 -1.0 -1.0 .6 .4 -1.7 1.0 -.5 -1.0 .1 -1.4 .1 2.0 -1.7 -5.0 -3.3 -1.5 -.9 3.6 2.0 1.4 .6 1.1 1.1 -1.6 .0 1.2
-.3 -1.0 -.3 -.6 .7 -1.0 -.2 -1.1 -.7 .6 .5 -1.3 -1.2 -1.0 -2.1 -.1 1.0 1.9 -.9 -.9 -2.9 .6 1.5 .5 1.2 -.5 -1.3 -1.1 -1.7 -2.5 -3.0
-.5 -.1 .2 -.3 -2.4 -2.7 -1.3 .1 -.2 -1.0 -3.8 -2.4 -1.4 .3 -.6 -.4 -1.2 -.4 -1.0 -1.6 -2.0 -3.7 .2 -3.2 -3.7 -3.9 -1.7 -2.0 -3.2 -5.3
-2.8 -.1 -2.7

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
APRIL 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


7 8 14
7 9 6 8 7 6 5 5 5 6 6 7 6 6 7 7 5 8 6 6 9 8 9 10 9 8 9 13
8 7 6 5 6 5 4 5 5 5 5 5 6 8 7 6 5 7 8 8 8 9 9 9 7 8 9 9 9
7 5 6 7 6 5 6 7 5 5 4 5 5 6 6 6 9 9 10 7 7 7 8 9 9 8 8 8 9 9 8 8
11 9 9 7 7 7 7 6 6 5 6 5 5 6 8 9 7 7 7 6 6 7 7 6 6 7 7 6 7 8 10 10
9 7 8 8 8 9 7 7 6 6 6 5 6 6 6 9 8 6 5 4 6 5 9 8 6 7 8 6 6 6 8 8
8 6 6 8 8 10 11 9 8 6 6 5 5 6 7 8 7 6 5 5 5 5 8 8 9 7 8 7 7 8 7
8 5 6 8 7 7 7 7 6 6 5 5 5 5 6 6 7 7 9 6 5 7 7 8 8 8 7 8 9 9
7 5 6 6 8 7 6 6 6 6 7 6 6 6 7 7 7 9 8 10 12 8 6 9 7 7 8 9 8 9 7 7
7 6 7 6 7 7 6 6 7 6 5 6 6 8 7 7 10 8 10 9 9 11 8 9 6 9 8 9 9 9 8
5 6 6 6 8 9 7 6 6 7 9 7 8 7 8 9 10 8 11 8 8 7 9 10 10 10 8 9 9 10
11 10 10

MONITORING OF SATELLITE TEMPERATURES

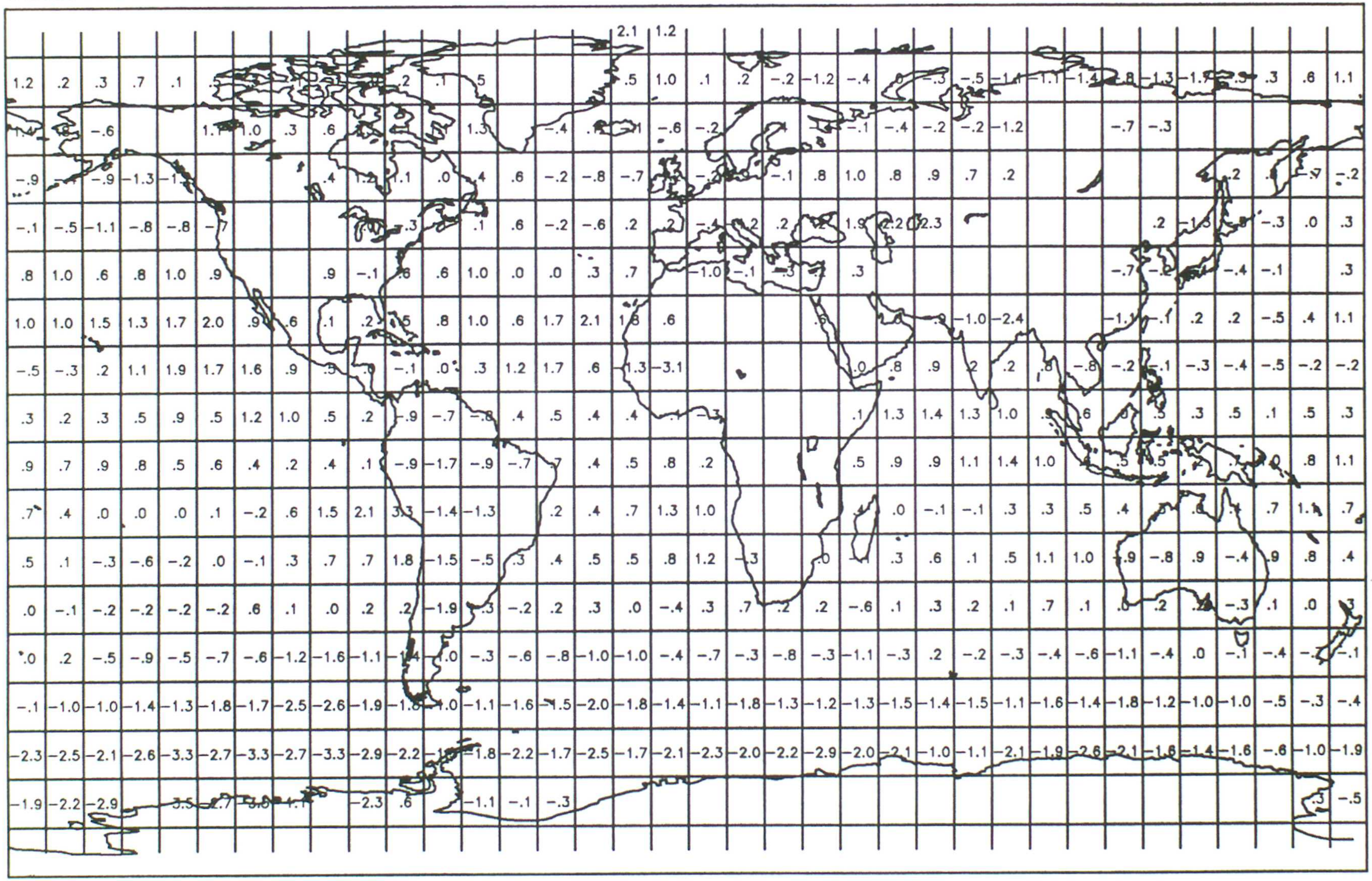
MONITORING CENTRE: BRACKNELL

MONTH: April, 1996

Monitoring procedures

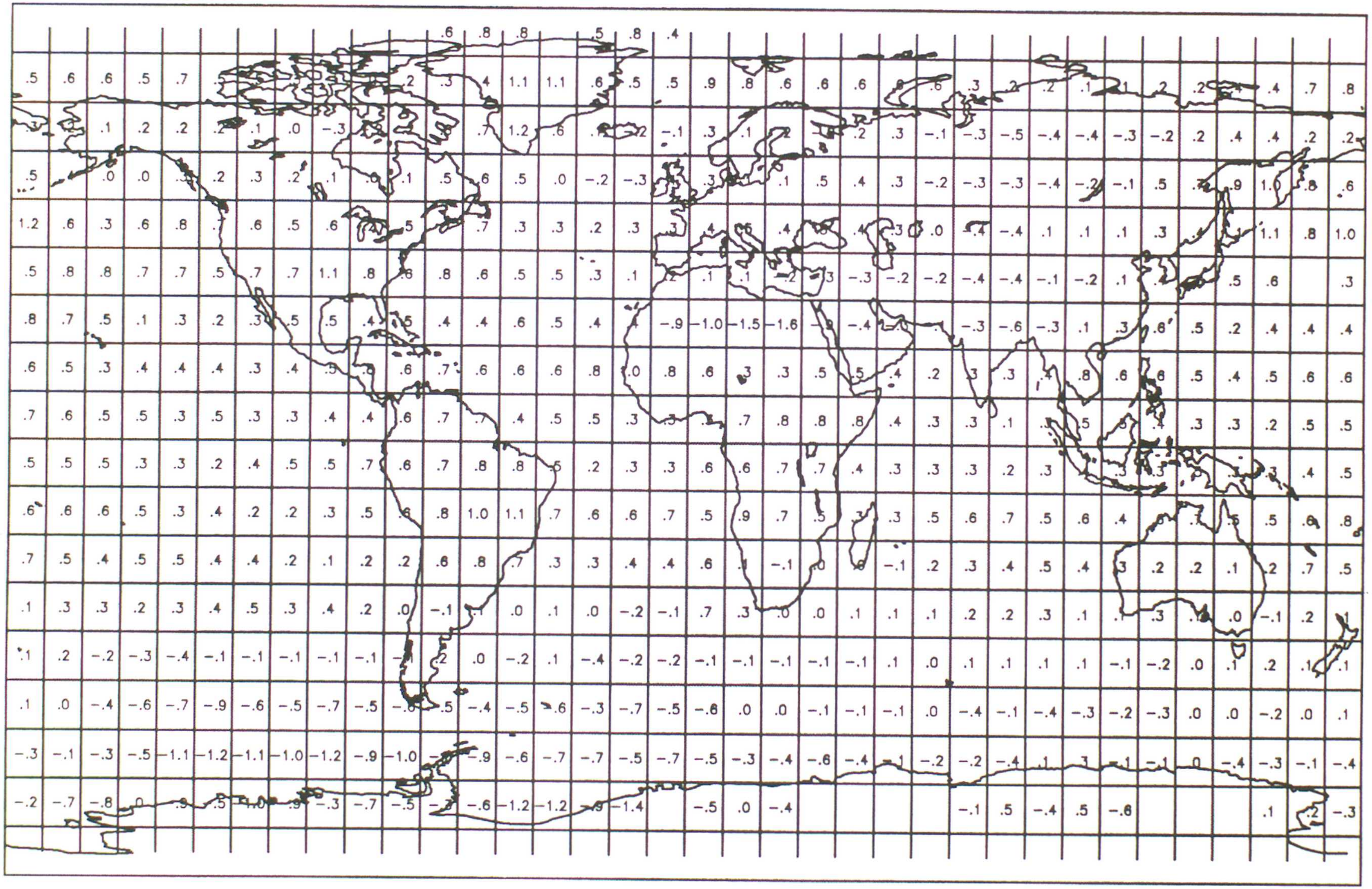
Period	:One calendar month.
Data monitored	:Reports from NOAA-12, NOAA-14 500 km.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:All SATEM soundings where number of observations > 30.
Data Extracted	:Layer: 850 - 1000 hPa 100 - 300 hPa 30 - 50 hPa
	:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
APRIL 1996
FIGURE 25
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

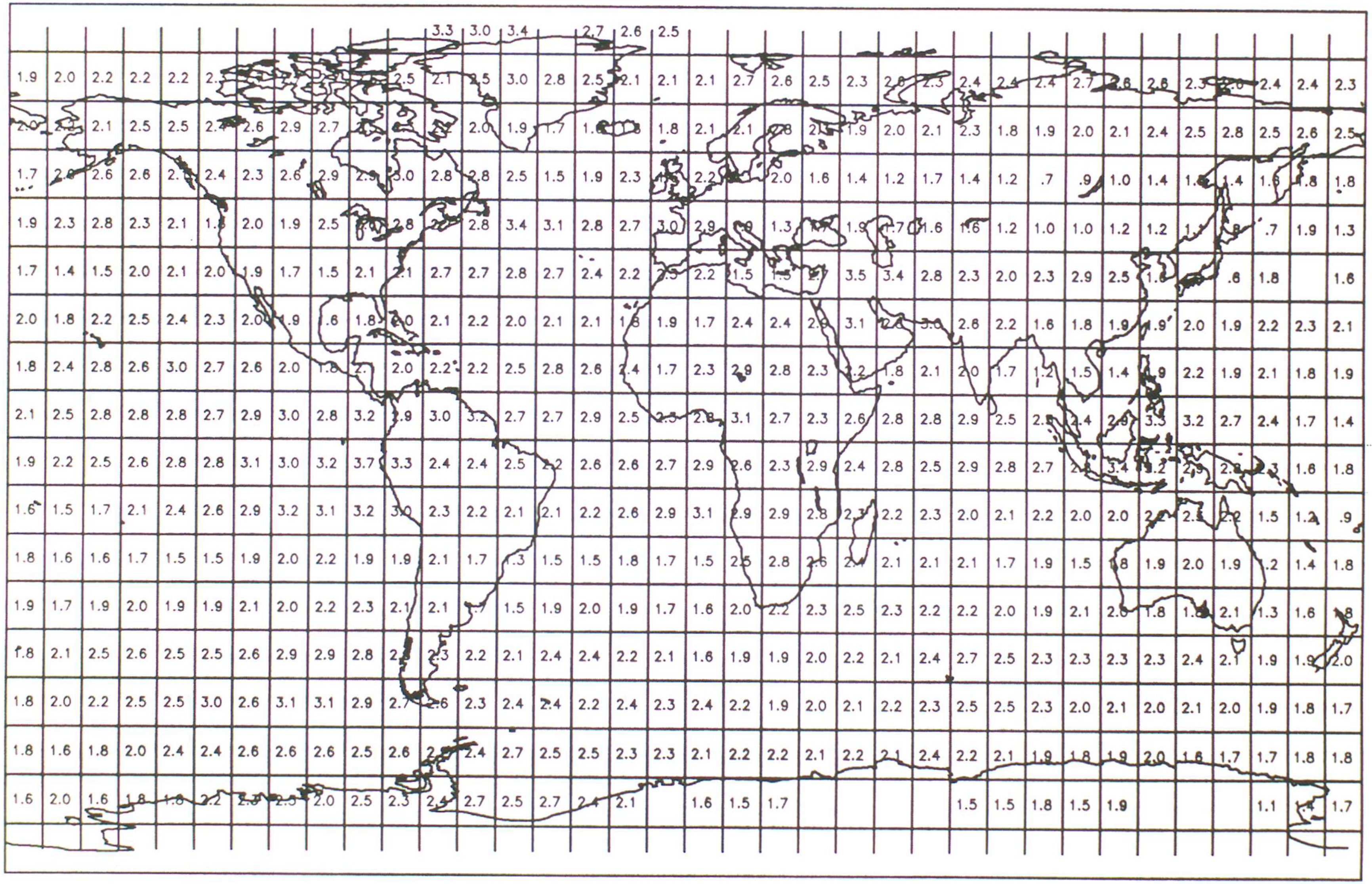


500 KM SATEMS : MEAN O−B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
APRIL 1996
NOAA−12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 26



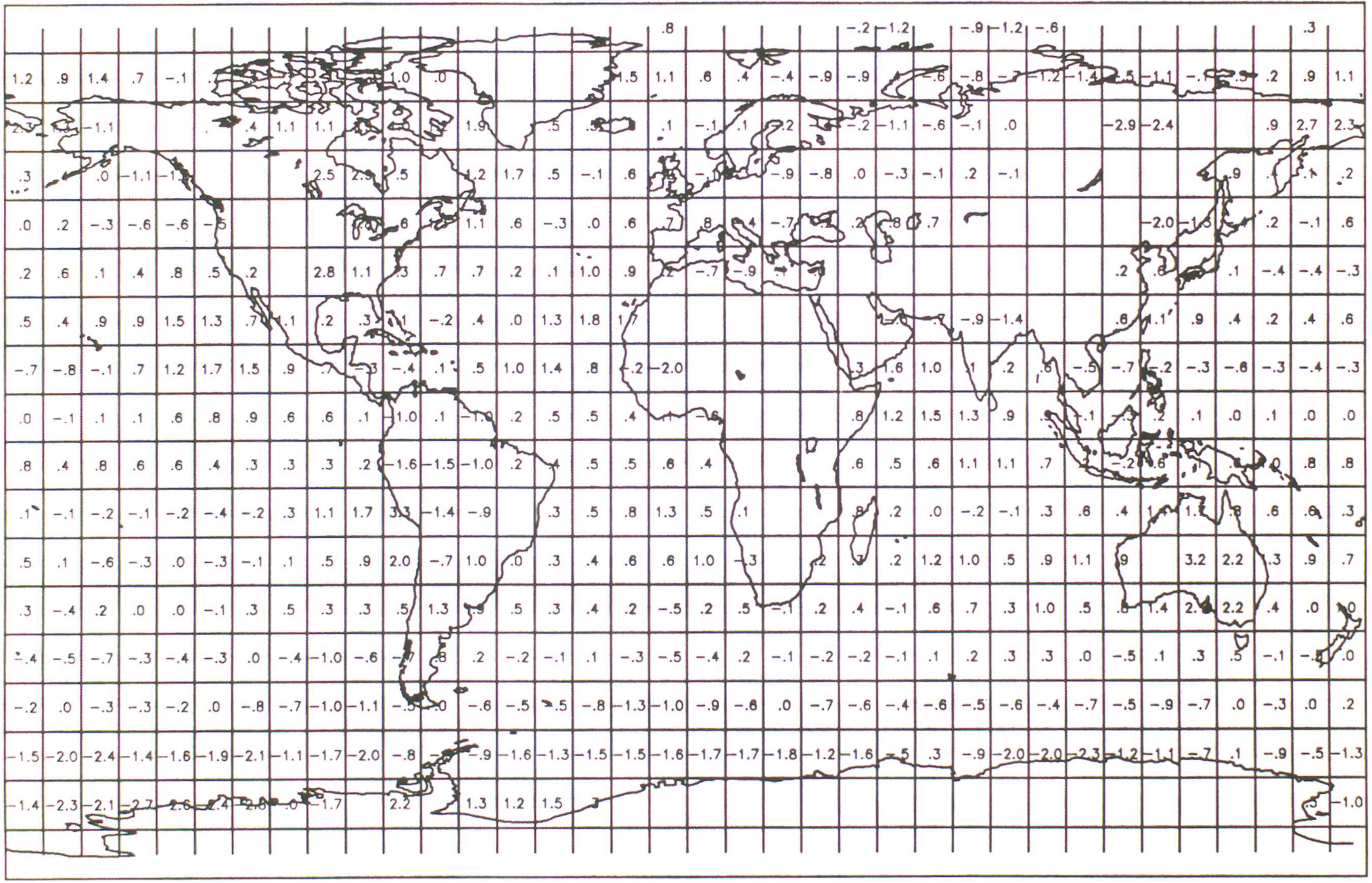
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
APRIL 1996
FIGURE 27
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



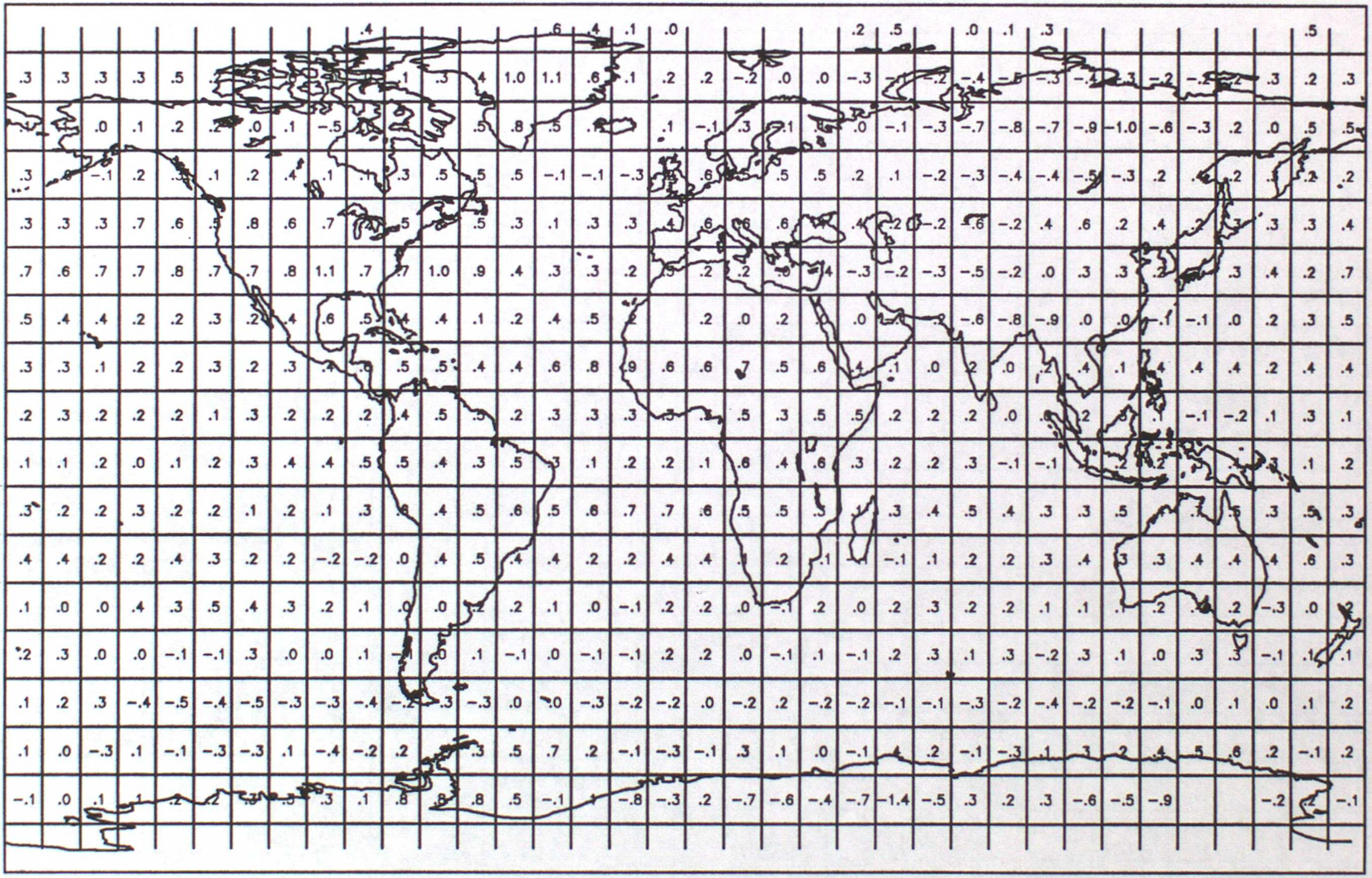
											3.3	3.0	3.4		2.7	2.6	2.5																		
1.9	2.0	2.2	2.2	2.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.5	2.1	2.5	3.0	2.8	2.5	2.1	2.1	2.1	2.7	2.6	2.5	2.3	2.6	2.3	2.4	2.4	2.4	2.7	2.6	2.6	2.3	2.0	2.4	2.4	2.3
2.0	2.3	2.1	2.5	2.5	2.4	2.6	2.9	2.7	[illegible]	[illegible]	[illegible]	2.0	1.9	1.7	1.6	[illegible]	1.8	2.1	2.1	2.8	[illegible]	1.9	2.0	2.1	2.3	1.8	1.9	2.0	2.1	2.4	2.5	2.8	2.5	2.6	2.5
1.7	[illegible]	2.6	2.6	[illegible]	2.4	2.3	2.6	2.9	[illegible]	3.0	2.8	2.8	2.5	1.5	1.9	2.3	[illegible]	2.2	[illegible]	2.0	1.6	1.4	1.2	1.7	1.4	1.2	.7	.9	1.0	1.4	1.6	1.4	1.6	1.8	1.8
1.9	2.3	2.8	2.3	2.1	1.8	2.0	1.9	2.5	[illegible]	2.8	[illegible]	2.8	3.4	3.1	2.8	2.7	3.0	2.9	[illegible]	1.3	[illegible]	1.9	1.7	1.6	1.6	1.2	1.0	1.0	1.2	1.2	1.1	.8	.7	1.9	1.3
1.7	1.4	1.5	2.0	2.1	2.0	1.9	1.7	1.5	2.1	2.1	2.7	2.7	2.8	2.7	2.4	2.2	2.5	2.2	1.5	1.5	2.7	3.5	3.4	2.8	2.3	2.0	2.3	2.9	2.5	1.6		.6	1.8		1.6
2.0	1.8	2.2	2.5	2.4	2.3	2.0	1.9	1.6	1.8	2.0	2.1	2.2	2.0	2.1	2.1	1.8	1.9	1.7	2.4	2.4	2.9	3.1	2.6	3.0	2.6	2.2	1.6	1.8	1.9	1.9	2.0	1.9	2.2	2.3	2.1
1.8	2.4	2.8	2.6	3.0	2.7	2.6	2.0	1.8	[illegible]	2.0	2.2	2.2	2.5	2.8	2.6	2.4	1.7	2.3	2.9	2.8	2.3	2.2	1.8	2.1	2.0	1.7	1.2	1.5	1.4	1.9	2.2	1.9	2.1	1.8	1.9
2.1	2.5	2.8	2.8	2.8	2.7	2.9	3.0	2.8	3.2	2.9	3.0	3.2	2.7	2.7	2.9	2.5	2.5	2.8	3.1	2.7	2.3	2.6	2.8	2.8	2.9	2.5	2.8	2.4	2.9	3.3	3.2	2.7	2.4	1.7	1.4
1.9	2.2	2.5	2.6	2.8	2.8	3.1	3.0	3.2	3.7	3.3	2.4	2.4	2.5	2.2	2.6	2.6	2.7	2.9	2.6	2.3	2.9	2.4	2.8	2.5	2.9	2.8	2.7	2.8	3.4	3.2	2.9	2.8	2.3	1.6	1.8
1.6	1.5	1.7	2.1	2.4	2.6	2.9	3.2	3.1	3.2	3.0	2.3	2.2	2.1	2.1	2.2	2.6	2.9	3.1	2.9	2.9	2.8	2.3	2.2	2.3	2.0	2.1	2.2	2.0	2.0	2.2	2.5	2.2	1.5	1.2	.9
1.8	1.6	1.6	1.7	1.5	1.5	1.9	2.0	2.2	1.9	1.9	2.1	1.7	1.3	1.5	1.5	1.8	1.7	1.5	2.5	2.8	2.6	2.4	2.1	2.1	2.1	1.7	1.9	1.5	1.8	1.9	2.0	1.9	1.2	1.4	1.8
1.9	1.7	1.9	2.0	1.9	1.9	2.1	2.0	2.2	2.3	2.1	2.1	1.7	1.5	1.9	2.0	1.9	1.7	1.6	2.0	2.2	2.3	2.5	2.3	2.2	2.2	2.0	1.9	2.1	2.0	1.8	1.8	2.1	1.3	1.6	1.8
1.8	2.1	2.5	2.6	2.5	2.5	2.6	2.9	2.9	2.8	[illegible]	2.3	2.2	2.1	2.4	2.4	2.2	2.1	1.6	1.9	1.9	2.0	2.2	2.1	2.4	2.7	2.5	2.3	2.3	2.3	2.3	2.4	2.1	1.9	1.9	2.0
1.8	2.0	2.2	2.5	2.5	3.0	2.6	3.1	3.1	2.9	2.7	2.6	2.3	2.4	2.4	2.2	2.4	2.3	2.4	2.2	1.9	2.0	2.1	2.2	2.3	2.5	2.5	2.3	2.0	2.1	2.0	2.1	2.0	1.9	1.8	1.7
1.8	1.6	1.8	2.0	2.4	2.4	2.6	2.6	2.6	2.5	2.6	[illegible]	2.4	2.7	2.5	2.5	2.3	2.3	2.1	2.2	2.2	2.1	2.2	2.1	2.4	2.2	2.1	1.9	1.8	1.9	2.0	1.6	1.7	1.7	1.8	1.8
1.6	2.0	1.6	1.8	1.8	2.2	2.3	2.5	2.0	2.5	2.3	2.4	2.7	2.5	2.7	2.4	2.1		1.6	1.5	1.7					1.5	1.5	1.8	1.5	1.9				1.1	1.4	1.7

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
APRIL 1996
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28


.8 −.2 −1.2 −.9 −1.2 −.6 .3
1.2 .9 1.4 .7 −.1 1.0 .0 1.5 1.1 .6 .4 −.4 −.9 −.9 −.6 −.8 −1.2 −1.4 −.5 −1.1 .2 .9 1.1
−1.1 .4 1.1 1.1 1.9 .5 .1 −.1 .1 .2 −.2 −1.1 −.6 −.1 .0 −2.9 −2.4 .9 2.7 2.3
.3 .0 −1.1 2.5 .5 1.2 1.7 .5 −.1 .6 −.9 −.8 .0 −.3 −.1 .2 −.1 .9 .2
.0 .2 −.3 −.6 −.6 .6 1.1 .6 −.3 .0 .6 .7 .8 .4 −.7 .2 .8 .7 −2.0 .2 −.1 .6
.2 .6 .1 .4 .8 .5 .2 2.8 1.1 .7 .7 .2 .1 1.0 .9 −.7 −.9 .2 .6 .1 −.4 −.4 −.3
.5 .4 .9 .9 1.5 1.3 .7 1.1 .2 .3 −.2 .4 .0 1.3 1.8 −.9 −1.4 .6 1.1 .9 .4 .2 .4 .6
−.7 −.8 −.1 .7 1.2 1.7 1.5 .9 −.4 .1 .5 1.0 1.4 .8 −2.0 .3 1.6 1.0 .2 −.5 −.7 −.2 −.3 −.8 −.3 −.4 −.3
.0 −.1 .1 .1 .6 .8 .9 .6 .6 .1 −1.0 .1 .2 .5 .5 .4 .8 1.2 1.5 1.3 .9 −.1 .2 .1 .0 .1 .0 .0
.8 .4 .8 .6 .6 .4 .3 .3 .3 .2 −1.6 −1.5 −1.0 .2 .5 .5 .6 .4 .6 .5 .6 1.1 1.1 .7 −.2 .6 .8 .8
.1 −.1 −.2 −.1 −.2 −.4 −.2 .3 1.1 1.7 3.3 −1.4 −.9 .3 .5 .8 1.3 .5 .1 .2 .0 −.2 −.1 .3 .6 .4 .6 .3
.5 .1 −.6 −.3 .0 −.3 −.1 .1 .5 .9 2.0 −.7 1.0 .0 .3 .4 .6 .6 1.0 .2 1.2 1.0 .5 .9 1.1 3.2 2.2 .9 .7
.3 −.4 .2 .0 .0 −.1 .3 .5 .3 .3 .5 1.3 .5 .3 .4 .2 −.5 .2 .5 .2 .4 −.1 .6 .7 .3 1.0 .5 1.4 2.2 .4 .0
−.4 −.5 −.7 −.3 −.4 −.3 .0 −.4 −1.0 −.6 .2 −.2 −.1 .1 −.3 −.5 −.4 .2 −.1 −.2 −.2 −.1 .1 .2 .3 .3 .0 −.5 .1 .3 .5 −.1 .0
−.2 .0 −.3 −.3 −.2 .0 −.8 −.7 −1.0 −1.1 −.6 −.5 .5 −.8 −1.3 −1.0 −.9 −.8 .0 −.7 −.6 −.4 −.6 −.5 −.6 −.4 −.7 −.5 −.9 −.7 .0 −.3 .0 .2
−1.5 −2.0 −2.4 −1.4 −1.6 −1.9 −2.1 −1.1 −1.7 −2.0 −.8 −.9 −1.6 −1.3 −1.5 −1.5 −1.6 −1.7 −1.7 −1.8 −1.2 −1.6 .3 −.9 −2.0 −2.0 −2.3 −1.2 −1.1 −.7 .1 −.9 −.5 −1.3
−1.4 −2.3 −2.1 −2.7 −2.6 −2.4 −2.8 .0 −1.7 2.2 1.3 1.2 1.5 −1.0

500 KM SATEMS : MEAN O−B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
APRIL 1996 FIGURE 29
NOAA−14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
APRIL 1996
FIGURE 30
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

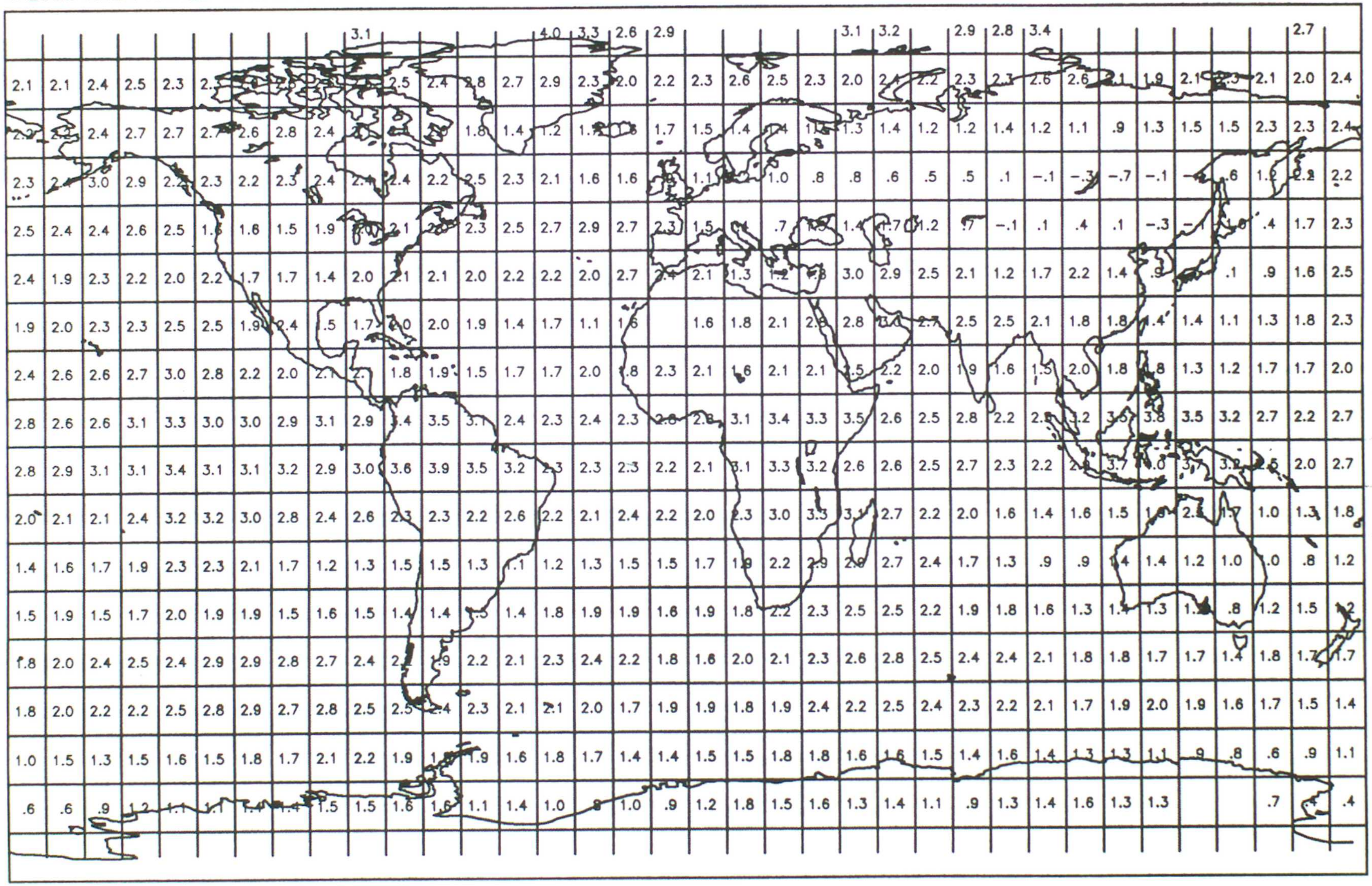

3.1 4.0 3.3 2.6 2.9 3.1 3.2 2.9 2.8 3.4 2.7
2.1 2.1 2.4 2.5 2.3 2. 2.5 2.4 2.8 2.7 2.9 2.3 2.0 2.2 2.3 2.6 2.5 2.3 2.0 2.4 2.2 2.3 2.3 2.6 2.6 2.1 1.9 2.1 2.3 2.1 2.0 2.4
2.2 2.4 2.7 2.7 2.7 2.6 2.8 2.4 1.8 1.4 1.2 1.7 1.7 1.5 1.4 1.4 1.5 1.3 1.4 1.2 1.2 1.4 1.2 1.1 .9 1.3 1.5 1.5 2.3 2.3 2.4
2.3 2.4 3.0 2.9 2.2 2.3 2.2 2.3 2.4 2.4 2.4 2.2 2.5 2.3 2.1 1.6 1.6 1.1 1.0 .8 .8 .6 .5 .5 .1 −.1 −.3 −.7 −.1 .6 1.2 2.2 2.2
2.5 2.4 2.4 2.6 2.5 1.6 1.6 1.5 1.9 2.0 2.1 2.3 2.5 2.7 2.9 2.7 2.3 1.5 .7 1.5 1.4 1.7 1.2 .7 −.1 .1 .4 .1 −.3 .4 1.7 2.3
2.4 1.9 2.3 2.2 2.0 2.2 1.7 1.7 1.4 2.0 2.1 2.1 2.0 2.2 2.2 2.0 2.7 2.4 2.1 1.3 1.2 1.3 3.0 2.9 2.5 2.1 1.2 1.7 2.2 1.4 .9 .1 .9 1.6 2.5
1.9 2.0 2.3 2.3 2.5 2.5 1.9 2.4 1.5 1.7 2.0 2.0 1.9 1.4 1.7 1.1 1.6 1.6 1.8 2.1 2.8 2.8 3.0 2.7 2.5 2.5 2.1 1.8 1.8 1.4 1.4 1.1 1.3 1.8 2.3
2.4 2.6 2.6 2.7 3.0 2.8 2.2 2.0 2.1 2. 1.8 1.9 1.5 1.7 1.7 2.0 1.8 2.3 2.1 1.6 2.1 2.1 1.5 2.2 2.0 1.9 1.6 1.5 2.0 1.8 1.8 1.3 1.2 1.7 1.7 2.0
2.8 2.6 2.6 3.1 3.3 3.0 3.0 2.9 3.1 2.9 3.4 3.5 3.1 2.4 2.3 2.4 2.3 2.8 2.8 3.1 3.4 3.3 3.5 2.6 2.5 2.8 2.2 2.8 3.2 3.5 3.8 3.5 3.2 2.7 2.2 2.7
2.8 2.9 3.1 3.1 3.4 3.1 3.1 3.2 2.9 3.0 3.6 3.9 3.5 3.2 2.3 2.3 2.3 2.2 2.1 3.1 3.3 3.2 2.6 2.6 2.5 2.7 2.3 2.2 2.4 3.7 4.0 3.7 3.2 2.5 2.0 2.7
2.0 2.1 2.1 2.4 3.2 3.2 3.0 2.8 2.4 2.6 2.3 2.3 2.2 2.6 2.2 2.1 2.4 2.2 2.0 2.3 3.0 3.3 3.1 2.7 2.2 2.0 1.6 1.4 1.6 1.5 1.6 2.5 1.7 1.0 1.3 1.8
1.4 1.6 1.7 1.9 2.3 2.3 2.1 1.7 1.2 1.3 1.5 1.5 1.3 1.1 1.2 1.3 1.5 1.5 1.7 1.9 2.2 2.9 2.9 2.7 2.4 1.7 1.3 .9 .9 1.4 1.4 1.2 1.0 1.0 .8 1.2
1.5 1.9 1.5 1.7 2.0 1.9 1.9 1.5 1.6 1.5 1.4 1.4 1.5 1.4 1.8 1.9 1.9 1.6 1.9 1.8 2.2 2.3 2.5 2.5 2.2 1.9 1.8 1.6 1.3 1.4 1.3 1.3 .8 1.2 1.5 1.2
1.8 2.0 2.4 2.5 2.4 2.9 2.9 2.8 2.7 2.4 2.1 1.9 2.2 2.1 2.3 2.4 2.2 1.8 1.6 2.0 2.1 2.3 2.6 2.8 2.5 2.4 2.4 2.1 1.8 1.8 1.7 1.7 1.4 1.8 1.7 1.7
1.8 2.0 2.2 2.2 2.5 2.8 2.9 2.7 2.8 2.5 2.5 2.4 2.3 2.1 2.1 2.0 1.7 1.9 1.9 1.8 1.9 2.4 2.2 2.5 2.4 2.3 2.2 2.1 1.7 1.9 2.0 1.9 1.6 1.7 1.5 1.4
1.0 1.5 1.3 1.5 1.6 1.5 1.8 1.7 2.1 2.2 1.9 1. 1.9 1.6 1.8 1.7 1.4 1.4 1.5 1.5 1.8 1.8 1.6 1.6 1.5 1.4 1.6 1.4 1.3 1.3 1.1 .9 .8 .6 .9 1.1
.6 .6 .9 1.2 1.1 1.1 1.4 1.4 1.5 1.5 1.6 1.6 1.1 1.4 1.0 .8 1.0 .9 1.2 1.8 1.5 1.6 1.3 1.4 1.1 .9 1.3 1.4 1.6 1.3 1.3 .7 .4 .4

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures
Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored
:Mean sea-level pressure (hPa)
:Wind speed (m s^{-1})
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS
:15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
25565	56.6	-33.4	ALL	MSLP	SUR	563	0	0	1.4	0.1	1.4
29604	18.6	-69.7	ALL	MSLP	SUR	14	0	0	1.0	-0.9	1.3
39604	25.8	-59.4	ALL	MSLP	SUR	9	0	0	1.1	0.1	1.1
40602	13.3	-69.5	ALL	MSLP	SUR	3	0	0	0.5	-1.5	1.6
40603	49.5	-15.9	ALL	MSLP	SUR	1	0	0	0.0	-1.0	1.0
40604	50.2	-11.4	ALL	MSLP	SUR	1	0	0	0.0	-0.9	0.9
40702	20.2	-29.4	ALL	MSLP	SUR	2	0	0	0.8	0.0	0.8
40703	13.9	-44.5	ALL	MSLP	SUR	8	0	0	1.0	-0.5	1.1
40704	44.2	-18.2	ALL	MSLP	SUR	4	0	0	0.5	0.5	0.7
40705	47.6	-25.2	ALL	MSLP	SUR	1	0	0	0.0	0.1	0.1
40803	39.0	-16.3	ALL	MSLP	SUR	1	0	0	0.0	-0.3	0.3
40804	46.9	-17.8	ALL	MSLP	SUR	4	0	0	0.5	0.1	0.5
40805	46.0	-38.9	ALL	MSLP	SUR	1	0	0	0.0	4.8	4.8
40907	46.5	-32.1	ALL	MSLP	SUR	2	0	0	0.3	0.0	0.4
40908	46.3	-32.3	ALL	MSLP	SUR	1	0	0	0.0	0.9	0.9
41526	34.7	-55.6	ALL	MSLP	SUR	201	0	0	1.0	0.0	1.0
41585	38.3	-48.6	ALL	MSLP	SUR	243	0	0	1.3	-0.2	1.3
44549	57.4	-46.5	ALL	MSLP	SUR	785	0	0	1.7	-0.3	1.7
44613	45.4	-11.8	ALL	MSLP	SUR	1255	7	1	0.9	0.1	0.9
44616	61.4	-19.3	ALL	MSLP	SUR	1852	9	0	1.1	0.7	1.3
44684	46.6	-59.5	ALL	MSLP	SUR	15	0	0	1.0	0.7	1.2
44692	50.4	-56.2	ALL	MSLP	SUR	261	0	0	1.1	-0.6	1.3
44727	42.7	-17.9	ALL	MSLP	SUR	1225	2	0	1.0	0.0	1.0
44728	60.8	-25.6	ALL	MSLP	SUR	1699	4	0	1.3	0.0	1.3
44760	24.3	-34.9	ALL	MSLP	SUR	329	0	0	0.9	-0.2	0.9
44763	56.5	-34.3	ALL	MSLP	SUR	1761	1	0	1.1	0.4	1.1
44765	59.6	-24.5	ALL	MSLP	SUR	1647	4	0	1.4	-0.3	1.4
44767	55.2	-39.1	ALL	MSLP	SUR	1634	3	0	0.9	0.3	1.0
44768	59.2	-32.4	ALL	MSLP	SUR	1838	2	0	1.2	0.2	1.2
44769	54.9	-26.3	ALL	MSLP	SUR	1728	2	0	1.3	0.2	1.4
44770	25.0	-41.4	ALL	MSLP	SUR	567	1	0	1.0	0.2	1.0
44771	50.9	-42.2	ALL	MSLP	SUR	1454	3	0	1.3	-0.3	1.3
44772	54.3	-32.0	ALL	MSLP	SUR	258	0	0	0.7	0.0	0.7
44773	53.3	-19.0	ALL	MSLP	SUR	1205	5	0	1.2	0.0	1.2
44774	51.8	-39.7	ALL	MSLP	SUR	1540	2	0	1.2	0.1	1.2
44911	52.3	-49.8	ALL	MSLP	SUR	108	0	0	1.5	0.2	1.5
49603	31.8	-36.1	ALL	MSLP	SUR	1	0	0	0.0	-1.7	1.7
49604	31.0	-56.9	ALL	MSLP	SUR	15	0	0	0.8	-0.7	1.0
61521	35.5	-4.4	ALL	MSLP	SUR	375	0	0	1.1	-0.1	1.1
62501	51.7	-19.8	ALL	MSLP	SUR	627	0	0	1.0	0.4	1.0
62503	45.9	-16.2	ALL	MSLP	SUR	546	0	0	0.9	0.2	0.9
62504	46.2	-9.5	ALL	MSLP	SUR	563	0	0	0.9	0.2	0.9
62505	48.5	-19.5	ALL	MSLP	SUR	568	0	0	1.0	0.4	1.1
62506	49.9	-20.6	ALL	MSLP	SUR	474	0	0	3.6	-0.4	3.6
62508	49.1	-22.7	ALL	MSLP	SUR	624	0	0	1.0	0.8	1.3
62510	46.4	-18.9	ALL	MSLP	SUR	587	0	0	1.0	0.6	1.1
62512	42.7	-18.5	ALL	MSLP	SUR	559	0	0	0.9	0.7	1.1
62519	45.3	-17.4	ALL	MSLP	SUR	1	1	100	0.0	0.0	0.0
62694	58.3	-44.6	ALL	MSLP	SUR	1651	2	0	1.0	-0.2	1.0
62910	57.3	-36.5	ALL	MSLP	SUR	150	0	0	1.0	0.5	1.1
63665	64.2	-38.7	ALL	MSLP	SUR	488	0	0	1.5	0.1	1.5
64590	65.0	-31.7	ALL	MSLP	SUR	14	0	0	0.3	0.2	0.4
64934	63.6	-28.4	ALL	MSLP	SUR	138	0	0	1.3	0.3	1.3
65594	62.6	-28.2	ALL	MSLP	SUR	1965	2	0	1.1	-0.2	1.1
65595	57.0	-42.6	ALL	MSLP	SUR	1487	2	0	1.0	-0.2	1.0
71542	44.7	-63.6	ALL	MSLP	SUR	54	51	94	3.8	-6.9	7.9

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
29604	18.6	-69.7	ALL	SPEED	SUR	10	0	0	1.5	1.5	2.2
39604	25.8	-59.4	ALL	SPEED	SUR	8	0	0	3.1	3.5	4.7
40602	13.3	-69.5	ALL	SPEED	SUR	3	0	0	1.0	-1.4	1.7
40603	49.5	-15.9	ALL	SPEED	SUR	1	0	0	0.0	3.5	3.5
40604	50.2	-11.4	ALL	SPEED	SUR	1	0	0	0.0	1.5	1.5
40702	20.2	-29.4	ALL	SPEED	SUR	2	0	0	0.4	-0.9	1.0
40703	13.9	-44.5	ALL	SPEED	SUR	7	0	0	2.0	0.9	2.2
40704	44.2	-18.2	ALL	SPEED	SUR	4	0	0	1.5	-0.6	1.6
40705	47.6	-25.2	ALL	SPEED	SUR	1	0	0	0.0	2.2	2.2
40803	39.0	-16.3	ALL	SPEED	SUR	1	0	0	0.0	2.1	2.1
40804	46.9	-17.8	ALL	SPEED	SUR	4	0	0	1.5	1.6	2.3
40805	46.0	-38.9	ALL	SPEED	SUR	1	0	0	0.0	-3.8	3.8
40907	46.5	-32.1	ALL	SPEED	SUR	2	0	0	4.1	4.3	6.0
40908	46.3	-32.3	ALL	SPEED	SUR	1	0	0	0.0	-2.1	2.1
41526	34.7	-55.6	ALL	SPEED	SUR	196	0	0	1.7	-2.5	3.0
44613	45.4	-11.8	ALL	SPEED	SUR	1143	5	0	2.1	-2.9	3.6
44616	61.4	-19.3	ALL	SPEED	SUR	1	0	0	0.0	-3.7	3.7
44772	54.3	-32.0	ALL	SPEED	SUR	1	0	0	0.0	-6.5	6.5
44774	51.8	-39.7	ALL	SPEED	SUR	1	0	0	0.0	-3.5	3.5
49603	31.8	-36.1	ALL	SPEED	SUR	1	0	0	0.0	0.9	0.9
49604	31.0	-56.9	ALL	SPEED	SUR	15	0	0	4.2	3.0	5.1
WIND DIRECTION											
29604	18.6	-69.7	ALL	DIRN.	SUR	7	0	0	17.4	-2.4	17.6
39604	25.8	-59.4	ALL	DIRN.	SUR	6	0	0	9.2	3.8	9.9
40602	13.3	-69.5	ALL	DIRN.	SUR	1	0	0	0.0	-33.7	33.7
40603	49.5	-15.9	ALL	DIRN.	SUR	1	0	0	0.0	-6.9	6.9
40604	50.2	-11.4	ALL	DIRN.	SUR	1	0	0	0.0	-10.9	10.9
40702	20.2	-29.4	ALL	DIRN.	SUR	1	0	0	0.0	-21.4	21.4
40703	13.9	-44.5	ALL	DIRN.	SUR	7	0	0	24.5	-4.7	24.9
40704	44.2	-18.2	ALL	DIRN.	SUR	3	0	0	12.8	23.9	27.1
40705	47.6	-25.2	ALL	DIRN.	SUR	1	0	0	0.0	3.2	3.2
40803	39.0	-16.3	ALL	DIRN.	SUR	1	0	0	0.0	-2.7	2.7
40804	46.9	-17.8	ALL	DIRN.	SUR	4	0	0	12.2	-11.1	16.5
40805	46.0	-38.9	ALL	DIRN.	SUR	1	0	0	0.0	-6.7	6.7
40907	46.5	-32.1	ALL	DIRN.	SUR	2	0	0	21.9	27.0	34.8
40908	46.3	-32.3	ALL	DIRN.	SUR	1	0	0	0.0	10.0	10.0
41526	34.7	-55.6	ALL	DIRN.	SUR	136	0	0	15.3	-1.4	15.4
44613	45.4	-11.8	ALL	DIRN.	SUR	780	5	1	27.4	2.5	27.5
44772	54.3	-32.0	ALL	DIRN.	SUR	1	0	0	0.0	-30.0	30.0
44774	51.8	-39.7	ALL	DIRN.	SUR	1	0	0	0.0	*****	156.0
49603	31.8	-36.1	ALL	DIRN.	SUR	1	0	0	0.0	-15.9	15.9
49604	31.0	-56.9	ALL	DIRN.	SUR	12	0	0	23.8	10.5	26.0

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

- :N REP. :Number of observations received excluding duplicates.
- :PG :Percentage of observations with gross errors.
- :PR :Percentage of observations rejected by quality control including rejections from the duplicate check.
- :PC :Percentage of observations with calm winds.
- :RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
- :BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3175	0	1	1.7	-0.1	3167	0	2	0	7.3	0.8
AAN	103	0	1	2.0	-0.4	106	0	3	0	9.0	1.3
ACA	909	0	1	1.9	0.1	930	0	1	1	6.2	0.3
AEA	359	1	100	2.9	0.5	358	0	5	0	10.0	0.9
AEL	397	1	2	2.0	-0.1	410	0	2	0	7.5	0.7
AFL	112	0	100	2.6	1.0	112	1	4	0	6.6	0.6
AFR	925	0	5	1.8	-0.2	946	0	5	0	8.1	1.3
AIC	22	0	9	3.0	1.5	22	0	18	0	14.0	0.9
AIH	82	0	0	1.8	0.1	85	0	.0	0	6.5	0.7
AMX	88	2	5	2.0	-0.3	86	0	3	0	8.4	1.1
AMY	82	0	1	1.6	-0.5	81	0	4	0	9.6	1.9
ANZ	206	1	1	2.0	-0.9	210	0	3	1	6.4	0.9
AOM	242	0	5	1.8	0.6	258	0	4	0	7.6	1.0
AUA	72	0	0	2.0	-0.9	73	0	0	0	6.7	1.5
AVA	135	0	2	1.9	0.0	141	0	3	0	9.4	1.0
AZA	420	0	5	2.0	0.0	425	0	6	0	7.0	1.2
BAL	200	0	18	1.9	0.2	210	0	19	0	8.4	1.0
BAW	1582	0	2	1.9	0.0	1603	0	3	1	7.1	1.0
BBB	33	6	3	1.3	-0.4	33	0	3	0	9.2	0.8
BWA	103	2	4	2.0	0.8	107	0	4	1	7.7	1.0
CDN	709	0	1	1.8	0.6	713	0	2	1	6.0	0.7
CFC	20	0	15	2.3	0.1	20	0	15	0	7.0	1.7
CFG	574	0	3	2.2	-1.0	589	0	3	0	9.5	1.2
CKT	26	4	0	2.4	1.1	28	0	4	0	10.0	-0.6
CLI	63	2	3	2.0	-0.4	64	0	0	0	7.2	1.5
CLX	116	0	0	1.9	-0.5	118	0	1	0	7.4	1.3
CMM	21	14	10	1.9	-0.7	20	0	0	0	10.4	4.3
COA	392	1	3	2.1	1.1	392	0	3	1	7.4	0.8
CRL	192	1	2	2.2	0.3	195	0	6	1	10.6	0.6
CSA	29	0	0	1.5	-0.5	30	0	3	0	7.4	2.2
CTM	26	0	12	1.8	-0.5	29	0	10	0	9.9	2.7
CUB	176	2	100	2.5	1.3	179	0	100	0	11.3	2.4
DAF	28	0	4	2.5	0.1	28	0	7	7	5.8	0.6
DAL	2396	0	1	1.9	0.5	2409	0	2	0	7.2	0.8
DHL	375	3	100	4.6	-2.6	374	0	5	1	9.0	1.3
DLH	2109	0	8	2.5	0.8	2118	0	10	2	7.2	0.7
DOA	99	1	22	1.9	0.3	98	1	26	0	8.8	0.6
EIA	28	0	14	2.0	-0.9	28	0	18	0	10.6	2.0
ELY	109	0	6	1.6	-0.3	115	1	15	2	9.4	2.3
EWW	108	4	40	3.3	0.6	115	0	100	1	16.0	4.3
FDX	509	1	3	1.9	0.7	501	0	2	0	8.0	1.1
FIN	343	0	1	1.7	0.5	341	0	3	1	7.2	0.8
GAF	98	0	7	2.2	0.7	99	0	6	1	6.2	1.0
GTI	45	0	0	1.5	-0.2	45	0	0	0	8.4	1.1
HLF	72	0	3	1.9	-1.1	75	0	7	0	10.0	1.5
IBE	881	1	16	2.2	0.2	901	0	17	0	8.8	1.4
ICE	636	0	1	1.7	-0.2	628	0	3	2	6.7	1.0
KLM	1872	0	1	1.9	0.4	1890	0	2	1	7.3	0.8
LDA	171	0	11	2.3	-1.3	175	1	12	0	7.5	0.1
LDI	149	0	4	2.5	-1.5	159	0	5	0	8.4	1.0
LIB	121	0	1	1.8	0.8	126	1	3	1	9.1	-0.3
LOT	259	0	2	2.1	-0.9	256	0	2	0	7.5	0.2
LTU	530	0	2	1.8	0.4	533	0	4	0	8.2	1.1
MPH	541	0	2	2.0	-0.7	554	0	3	0	7.8	1.0
NWA	2374	1	2	2.3	0.7	2408	0	2	1	7.3	0.6
OAL	40	0	0	2.7	1.5	41	0	2	0	8.2	0.1
OOE	36	3	28	2.6	1.7	35	0	29	3	5.0	0.4
PIA	37	0	5	2.9	-0.4	37	0	0	0	6.1	0.7
RJA	112	1	4	2.3	0.6	113	0	3	0	6.5	0.6

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RRR	198	2	22	2.6	-0.8	196	0	22	2	9.2	1.2
SAB	51	2	2	1.8	-0.4	52	0	2	0	6.7	1.3
SAS	967	0	1	1.6	0.0	964	0	3	2	6.7	0.4
SIA	52	0	2	2.1	-1.0	56	0	4	0	6.4	0.8
SLR	27	0	19	2.4	-1.4	27	0	19	0	7.3	1.6
SVA	115	0	3	1.5	-0.1	124	0	9	0	10.3	1.9
SWR	154	0	2	2.0	0.8	154	0	3	0	9.4	1.5
TAP	373	1	8	2.0	-0.2	369	0	8	0	10.2	0.9
TEJ	83	1	22	1.6	-0.2	86	1	22	0	10.5	0.5
TOW	86	1	7	1.9	-0.2	89	0	3	0	9.0	1.6
TSC	28	0	7	2.4	1.3	29	0	3	0	7.6	-0.2
TWA	1283	0	2	2.1	0.2	1272	0	2	0	7.6	1.1
UAL	1558	0	2	2.0	-0.8	1574	0	2	1	6.8	0.7
ULE	149	0	1	1.8	0.0	150	0	3	0	7.9	1.5
UPS	478	1	15	1.8	0.3	484	0	16	0	8.3	1.2
USA	97	1	0	1.2	-0.5	96	0	0	0	6.3	0.8
VIA	104	4	4	2.0	1.2	105	1	4	0	8.0	0.4
VIR	175	1	3	1.7	-0.2	175	0	4	1	8.8	1.6
WOA	49	0	14	1.5	0.5	48	0	17	0	9.0	0.5
BA	9568	0	17	1.3	0.3	9563	0	17	0	6.7	1.1
KL	3879	0	19	1.3	0.3	3876	0	19	0	6.7	1.3
LH	276	0	16	1.3	0.3	276	0	16	0	5.8	1.1
MF	34	0	0	1.9	-0.7	34	0	3	0	11.3	1.8
SV	42	0	0	2.1	1.3	42	0	0	0	7.0	-0.2
M	135	0	100	2.7	0.9	148	1	100	0	12.3	2.3
N	294	2	4	2.3	0.7	299	0	7	1	9.4	0.8

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	26	0	19.4	21.4	9.0
DBBH	12	Z	100	20	0	13.3	21.2	16.4
EHOA	00	Z	100	1	0	0.0	49.0	49.0
EHOA	12	Z	100	15	0	16.0	22.0	15.1
FNOR	00	Z	100	9	0	13.7	17.4	10.8
FNOR	12	Z	100	11	0	18.7	20.2	7.5
FNOU	00	Z	100	9	0	18.0	18.0	0.4
FNOU	12	Z	100	10	0	12.6	13.6	4.9
FNPH	00	Z	100	12	0	18.6	18.6	-1.7
FNPH	12	Z	100	10	0	16.3	22.1	-14.9
FNRS	00	Z	100	11	0	14.5	15.5	5.5
FNRS	12	Z	100	14	0	13.9	14.2	2.9
GACA	00	Z	100	28	0	10.9	15.0	10.3
GACA	12	Z	100	28	0	21.5	24.0	10.5
JBOA	00	Z	100	1	0	0.0	14.0	14.0
JCCX	00	Z	100	1	0	0.0	15.0	15.0
LDWR	00	Z	100	30	0	14.5	14.6	1.8
LDWR	12	Z	100	28	0	13.4	14.1	4.3
OXYH2	00	Z	100	21	0	17.0	18.8	8.1
OXYH2	12	Z	100	21	0	17.6	23.8	16.1
SHIPAF	00	Z	100	3	0	19.7	35.6	29.7
SHIPAF	12	Z	100	1	0	0.0	65.0	65.0
SHIPS	00	Z	100	1	0	0.0	4.0	-4.0
UQYC	00	Z	100	1	0	0.0	9.0	9.0
V2EZ	00	Z	100	7	0	26.8	27.8	-7.4
V2EZ	12	Z	100	7	0	29.5	42.5	30.6
V2GH	00	Z	100	9	0	35.5	35.9	5.3
V2GH	12	Z	100	17	0	33.1	33.1	-0.3
V2LV	00	Z	100	26	0	14.8	15.1	2.8
V2LV	12	Z	100	24	0	16.0	16.9	5.2
03953	00	Z	100	29	0	10.6	16.0	12.0
03953	12	Z	100	30	0	10.8	20.6	17.5
04018	00	Z	100	30	0	12.1	23.5	20.2
04018	12	Z	100	26	0	13.7	27.6	24.0
04220	00	Z	100	30	0	16.9	23.2	15.9
04220	12	Z	100	30	0	19.4	30.8	23.8
04270	00	Z	100	29	0	13.9	19.3	13.4
04270	12	Z	100	30	0	23.1	26.4	12.8
04339	00	Z	100	27	0	12.7	18.3	13.1
04339	12	Z	100	29	0	12.8	26.1	22.7
04360	00	Z	100	30	0	14.9	18.4	10.8
04360	12	Z	100	30	0	15.5	27.1	22.3
08001	00	Z	100	26	0	16.7	17.2	4.3
08001	12	Z	100	27	0	15.3	15.3	0.1
08508	00	Z	100	28	0	13.8	20.1	14.7
08508	12	Z	100	27	0	30.2	37.0	21.4
08594	00	Z	100	1	0	0.0	12.0	12.0
08594	12	Z	100	28	0	15.1	18.7	11.0
60020	00	Z	100	29	0	14.8	26.7	22.2
60020	12	Z	100	30	0	17.8	21.4	11.8
71600	00	Z	100	29	0	35.8	48.7	33.0
71600	12	Z	100	29	0	32.9	47.8	34.7
72201	00	Z	100	25	0	37.4	42.6	20.4
72201	12	Z	100	28	0	26.3	47.7	39.8
72402	00	Z	100	26	0	19.7	43.9	39.3
72402	12	Z	100	25	0	22.0	63.0	59.0
74494	00	Z	100	17	0	27.1	27.3	3.8
74494	12	Z	100	28	0	35.6	72.2	62.8
78016	00	Z	100	1	0	0.0	21.0	21.0
78016	12	Z	100	27	0	16.5	18.5	8.4

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	26	0	8.7	9.0	-2.2
DBBH	12	Z	500	22	0	7.5	8.5	4.0
DBLK	00	Z	500	1	0	0.0	21.0	-21.0
EHOA	00	Z	500	1	0	0.0	31.0	31.0
EHOA	12	Z	500	19	0	11.0	20.3	17.1
FNOR	00	Z	500	9	0	12.5	18.5	13.6
FNOR	12	Z	500	11	0	8.6	12.0	8.3
FNOU	00	Z	500	10	0	9.7	12.5	7.9
FNOU	12	Z	500	12	0	7.6	16.2	14.3
FNPH	00	Z	500	13	0	16.7	16.8	-2.0
FNPH	12	Z	500	11	0	13.0	15.7	-8.8
FNRS	00	Z	500	12	0	10.4	11.6	5.2
FNRS	12	Z	500	14	0	11.4	11.7	2.9
GACA	00	Z	500	28	0	11.3	14.2	8.6
GACA	12	Z	500	28	0	19.4	21.0	7.8
JBOA	00	Z	500	1	0	0.0	3.0	3.0
JCCX	00	Z	500	1	0	0.0	3.0	-3.0
LDWR	00	Z	500	29	0	8.2	9.1	3.9
LDWR	12	Z	500	26	0	14.9	15.4	-3.8
OXYH2	00	Z	500	23	0	9.5	9.8	-2.3
OXYH2	12	Z	500	22	0	13.9	14.2	-3.2
SHIPAF	00	Z	500	3	0	7.9	18.7	17.0
SHIPAF	12	Z	500	1	0	0.0	17.0	17.0
SHIPS	00	Z	500	1	0	0.0	7.0	-7.0
UQYC	00	Z	500	1	0	0.0	18.0	-18.0
V2EZ	00	Z	500	7	0	43.4	47.1	-18.3
V2EZ	12	Z	500	7	0	13.3	14.8	6.6
V2GH	00	Z	500	10	0	22.7	22.9	2.7
V2GH	12	Z	500	19	0	14.1	14.6	3.7
V2LV	00	Z	500	27	0	10.6	14.3	9.5
V2LV	12	Z	500	28	0	7.8	14.0	11.6
03953	00	Z	500	30	0	11.1	13.7	8.0
03953	12	Z	500	30	0	7.0	10.2	7.5
04018	00	Z	500	30	0	13.8	18.0	11.6
04018	12	Z	500	28	0	14.3	16.5	8.1
04220	00	Z	500	30	0	15.7	16.0	3.2
04220	12	Z	500	30	0	14.3	15.2	5.1
04270	00	Z	500	30	0	16.1	17.3	6.2
04270	12	Z	500	30	0	18.3	18.4	1.8
04339	00	Z	500	27	0	13.4	13.4	-0.6
04339	12	Z	500	29	0	13.9	13.9	-0.1
04360	00	Z	500	29	0	16.4	16.4	-1.5
04360	12	Z	500	30	0	16.7	16.7	1.1
08001	00	Z	500	25	0	14.8	15.4	4.4
08001	12	Z	500	27	0	18.1	18.1	-0.7
08508	00	Z	500	28	0	12.2	15.3	9.3
08508	12	Z	500	28	0	13.3	14.6	6.0
08594	00	Z	500	1	0	0.0	21.0	21.0
08594	12	Z	500	28	0	11.4	13.0	6.1
60020	00	Z	500	29	0	12.8	22.5	18.5
60020	12	Z	500	30	0	13.3	22.8	18.5
71600	00	Z	500	29	0	22.7	23.3	5.2
71600	12	Z	500	29	0	17.6	19.1	7.3
72201	00	Z	500	28	0	8.1	11.4	8.0
72201	12	Z	500	29	0	7.1	11.4	8.9
72402	00	Z	500	30	0	11.5	15.1	9.7
72402	12	Z	500	28	0	9.7	18.1	15.4
74494	00	Z	500	30	0	13.6	13.7	2.1
74494	12	Z	500	28	0	18.5	18.8	3.6
78016	00	Z	500	1	0	0.0	5.0	5.0
78016	12	Z	500	27	0	10.9	11.2	2.8

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	25	0	0	0.0	0.8	-1.5
DBBH	12	V	100	20	0	5	3.8	-0.7	-1.4
EHOA	00	V	100	1	0	0	3.3	-6.4	14.5
EHOA	12	V	100	14	0	0	3.3	-0.2	2.1
FNOR	00	V	100	9	0	0	3.4	-0.8	-1.9
FNOR	12	V	100	10	0	0	3.4	-0.9	-0.8
FNOU	00	V	100	9	0	0	2.5	-1.0	1.0
FNOU	12	V	100	10	0	0	4.0	-3.6	1.8
FNPH	00	V	100	11	0	0	6.1	-0.2	-0.5
FNPH	12	V	100	11	0	0	3.2	-1.2	0.6
FNRS	00	V	100	11	0	0	3.1	-1.3	0.0
FNRS	12	V	100	14	0	0	3.0	-5.9	-0.5
GACA	00	V	100	28	0	0	7.6	0.0	-0.5
GACA	12	V	100	28	0	0	1.6	-0.7	-0.3
JBOA	00	V	100	1	0	0	1.6	4.9	-0.6
JCCX	00	V	100	1	0	0	1.6	1.5	4.0
LDWR	00	V	100	30	0	0	1.6	0.3	0.0
LDWR	12	V	100	28	0	0	1.2	-0.5	-0.2
OXYH2	00	V	100	20	0	0	1.2	-0.1	-0.4
OXYH2	12	V	100	21	0	0	1.8	0.3	-0.7
SHIPAF	00	V	100	2	0	0	1.9	6.5	-0.7
UQYC	00	V	100	1	0	0	1.9	2.4	0.1
V2EZ	00	V	100	7	0	0	1.9	0.3	-0.4
V2EZ	12	V	100	7	0	0	1.9	0.6	-0.1
V2GH	00	V	100	9	0	0	1.9	0.4	-0.5
V2GH	12	V	100	17	0	0	1.9	-2.2	-1.1
V2LV	00	V	100	25	0	0	3.4	0.8	-0.7
V2LV	12	V	100	24	0	0	3.1	-1.7	0.8
03953	00	V	100	28	0	0	1.7	0.1	-0.2
03953	12	V	100	30	0	0	2.1	-0.9	-0.7
04018	00	V	100	29	0	0	1.3	-0.1	0.8
04018	12	V	100	25	0	0	2.1	-0.2	-0.6
04220	00	V	100	30	0	0	2.2	0.2	0.1
04220	12	V	100	30	0	0	2.6	0.1	-0.3
04270	00	V	100	29	0	0	1.9	-0.2	0.1
04270	12	V	100	30	0	0	1.8	0.1	0.1
04339	00	V	100	27	0	0	2.2	-0.1	-0.1
04339	12	V	100	29	0	0	1.8	-0.2	-0.2
04360	00	V	100	29	0	0	1.6	-0.5	0.5
04360	12	V	100	30	0	0	2.5	0.8	-0.3
08001	00	V	100	26	0	0	1.7	-0.6	-0.2
08001	12	V	100	26	0	0	2.7	-1.7	-0.8
08508	00	V	100	28	0	0	3.2	0.3	-0.5
08508	12	V	100	28	0	0	3.1	-1.5	0.2
08594	00	V	100	1	0	0	2.7	-1.8	4.9
08594	12	V	100	26	0	0	2.7	0.5	2.5
60020	00	V	100	29	0	0	3.6	-0.2	1.3
60020	12	V	100	30	0	0	3.3	-0.4	1.4
71600	00	V	100	29	0	0	4.5	0.2	0.3
71600	12	V	100	28	0	0	3.2	0.7	0.4
72201	00	V	100	23	0	0	2.1	-1.4	1.2
72201	12	V	100	25	0	0	4.2	-0.6	-0.8
72402	00	V	100	24	0	0	2.4	0.1	0.0
72402	12	V	100	20	0	0	3.7	-0.7	-0.7
74494	00	V	100	17	0	0	3.5	-1.1	-0.2
74494	12	V	100	28	0	0	3.0	-0.1	0.9
78016	00	V	100	1	0	0	9.8	-1.9	-1.5
78016	12	V	100	27	0	0	9.8	-1.6	0.6

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: April, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	25	0	0	0.0	-0.1	0.8
DBBH	12	V	500	22	0	0	1.7	-0.7	1.6
DBLK	00	V	500	1	0	0	2.4	-5.9	2.7
EHOA	00	V	500	1	0	0	2.4	1.4	1.9
EHOA	12	V	500	19	0	0	2.4	-1.9	0.0
FNOR	00	V	500	9	0	0	4.0	0.0	-0.7
FNOR	12	V	500	11	0	0	4.0	-0.7	1.6
FNOU	00	V	500	10	0	0	4.1	0.0	-1.7
FNOU	12	V	500	12	0	0	2.7	-1.8	-0.6
FNPH	00	V	500	12	0	0	3.5	-0.7	0.0
FNPH	12	V	500	12	0	0	2.8	0.8	0.3
FNRS	00	V	500	11	0	0	3.6	-1.9	0.3
FNRS	12	V	500	14	0	0	2.2	-2.7	-1.8
GACA	00	V	500	28	0	0	4.0	0.7	0.1
GACA	12	V	500	28	0	0	3.5	-0.5	-1.1
JBOA	00	V	500	1	0	0	3.6	0.9	-0.5
JCCX	00	V	500	1	0	0	3.6	-2.0	-1.1
LDWR	00	V	500	29	0	0	3.6	0.9	0.1
LDWR	12	V	500	26	0	0	3.4	0.7	-0.3
OXYH2	00	V	500	23	0	0	2.2	0.1	0.0
OXYH2	12	V	500	22	0	0	4.1	0.1	-1.2
SHIPAF	00	V	500	2	0	0	3.7	-0.2	-4.7
SHIPAF	12	V	500	1	0	0	3.7	6.7	-4.5
UQYC	00	V	500	1	0	0	3.7	1.9	-0.2
V2EZ	00	V	500	7	0	0	3.7	1.7	0.6
V2EZ	12	V	500	7	0	0	3.7	0.4	0.4
V2GH	00	V	500	10	0	0	3.7	0.1	0.1
V2GH	12	V	500	19	0	0	3.1	-0.5	-0.5
V2LV	00	V	500	27	0	0	2.9	0.7	0.0
V2LV	12	V	500	28	0	0	2.6	-0.4	0.7
03953	00	V	500	30	0	0	2.3	1.0	0.9
03953	12	V	500	30	0	0	4.7	-0.7	1.2
04018	00	V	500	30	0	0	3.7	-0.2	0.7
04018	12	V	500	28	0	0	3.6	0.3	-0.1
04220	00	V	500	30	0	0	4.6	0.8	1.3
04220	12	V	500	30	0	0	4.2	0.1	-0.2
04270	00	V	500	30	0	0	3.4	0.3	-0.5
04270	12	V	500	30	0	0	5.1	0.3	-0.2
04339	00	V	500	27	0	0	5.7	0.5	0.0
04339	12	V	500	29	0	3	3.5	-1.3	0.5
04360	00	V	500	29	0	0	3.5	-0.9	-1.7
04360	12	V	500	30	0	0	4.6	-1.1	-0.5
08001	00	V	500	25	0	0	3.4	1.0	0.3
08001	12	V	500	26	0	0	5.0	-1.9	-1.7
08508	00	V	500	28	0	0	2.7	1.2	-1.0
08508	12	V	500	27	0	0	4.1	0.5	0.5
08594	00	V	500	1	0	0	3.5	-6.0	-4.6
08594	12	V	500	25	0	0	3.5	-1.9	-0.2
60020	00	V	500	29	0	0	3.0	0.2	-0.1
60020	12	V	500	30	0	0	3.6	-1.8	0.2
71600	00	V	500	29	0	0	3.2	1.7	-1.2
71600	12	V	500	28	0	3	5.7	0.6	0.8
72201	00	V	500	28	0	0	2.5	0.5	0.2
72201	12	V	500	28	0	0	2.7	1.1	-0.4
72402	00	V	500	30	0	0	2.3	1.5	0.5
72402	12	V	500	26	0	0	4.2	-0.3	1.3
74494	00	V	500	30	0	0	4.6	0.2	1.1
74494	12	V	500	27	0	0	2.7	-0.1	1.7
78016	00	V	500	1	0	0	3.8	1.4	0.0
78016	12	V	500	27	0	0	3.8	-0.1	-0.1

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed $m\ s^{-1}$
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45